

**REPORT NUMBER: 208-MGA-2008-005**

**VEHICLE SAFETY COMPLIANCE TESTING  
FOR  
FMVSS 208, OCCUPANT CRASH PROTECTION  
FMVSS 212, WINDSHIELD MOUNTING  
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)  
FMVSS 301, FUEL SYSTEM INTEGRITY**

**DAIMLER AG  
2008 SMART FORTWO PASSENGER CAR  
NHTSA NO.: C80511**

**PREPARED BY:  
MGA RESEARCH CORPORATION  
5000 WARREN ROAD  
BURLINGTON, WI 53105**



**TEST DATES: MARCH 11, 2008 – MAY 5, 2008**

**FINAL REPORT DATE: JUNE 20, 2008**

**FINAL REPORT**

**PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF ENFORCEMENT  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
1200 NEW JERSEY AVENUE, S.E., NVS-220  
WASHINGTON, D.C. 20590**

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<b>16. Abstract</b> Compliance tests were conducted on the subject 2008 Smart fortwo in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-13 for the determination of FMVSS 208 compliance. Test failures identified were as follows:  None			
<b>17. Key Words</b>  Frontal Impact 40 kmph Vehicle Safety Compliance Testing FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219, (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"		<b>18. Distribution Statement</b> Copies of this report are available from the following: U.S. Department of Transportation National Highway Traffic Safety Administration Technical Information Services (TIS), NPO-411 1200 New Jersey Avenue, S.E. (Room E12-100) Washington, DC 20590	
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**SECTION 1**  
**PURPOSE OF COMPLIANCE TESTS**

The tests performed are part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-03-D-11002. The purpose of this test was to determine whether the subject vehicle, a 2008 Smart fortwo, NHTSA No. C80511, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-13 dated July 27, 2005.

## SECTION 2

### TESTS PERFORMED

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
 Test Dates: 3/11/08 – 5/5/08

The following checked items indicate the tests that were performed:

- |                                     |     |   |
|-------------------------------------|-----|---|
| <input checked="" type="checkbox"/> | 1.  | Rear outboard seating position seat belts (S4.1.1.2(b) & (S4.2.4)   |
| <input checked="" type="checkbox"/> | 2.  | Air bag labels (S4.5.1)   |
| <input checked="" type="checkbox"/> | 3.  | Readiness indicator (S4.5.2)  |
| <input checked="" type="checkbox"/> | 4.  | Passenger air bag manual cut-off device (S4.5.4)  |
| <input checked="" type="checkbox"/> | 5.  | Lap belt lockability (S7.1.1.5)   |
| <input checked="" type="checkbox"/> | 6.  | Seat belt warning system (S7.3)   |
| <input checked="" type="checkbox"/> | 7.  | Seat belt contact force (S7.4.4)  |
| <input checked="" type="checkbox"/> | 8.  | Seat belt latch plate access (S7.4.4)   |
| <input checked="" type="checkbox"/> | 9.  | Seat belt retraction (S7.4.5)   |
| <input checked="" type="checkbox"/> | 10. | Seat belt guides and hardware (S7.4.6)  |
| <input checked="" type="checkbox"/> | 11. | Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)   |
| <input checked="" type="checkbox"/> | 12. | Suppression tests with newborn infant (Part 572, Subpart K)   |
| <input type="checkbox"/>            | 13. | Suppression tests with 3-year-old dummy (Part 572, Subpart P)   |
| <input type="checkbox"/>            | 14. | Suppression tests with 6-year-old dummy (Part 572, Subpart N)   |
| <input checked="" type="checkbox"/> | 15. | Test of reactivation of the passenger air bag system with an unbelted 5 <sup>th</sup> percentile female dummy |
| <input type="checkbox"/>            | 16. | Low risk deployment test with 12-month-old dummy (Part 572, Subpart R)  |
| <input checked="" type="checkbox"/> | 17. | Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)  |
| <input checked="" type="checkbox"/> | 18. | Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)  |
| <input checked="" type="checkbox"/> | 19. | Low risk deployment test with 5 <sup>th</sup> female dummy (Part 572, Subpart O)                              |
| <input checked="" type="checkbox"/> | 20. | Impact Tests  |
| <input type="checkbox"/>            |     | Frontal Oblique   |
| <input type="checkbox"/>            |     | Belted 50 <sup>th</sup> male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))                            |
| <input type="checkbox"/>            |     | Unbelted 50 <sup>th</sup> male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))                       |
| <input type="checkbox"/>            |     | Unbelted 50 <sup>th</sup> male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))        |
| <input checked="" type="checkbox"/> |     | Frontal 0°  |
| <input type="checkbox"/>            |     | Belted 50 <sup>th</sup> male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))                         |
| <input type="checkbox"/>            |     | Belted 50 <sup>th</sup> male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))                      |
| <input type="checkbox"/>            |     | Belted 5 <sup>th</sup> female dummy driver (0 to 48 kmph) (S16.1(a))  |
| <input type="checkbox"/>            |     | Belted 5 <sup>th</sup> female dummy passenger (0 to 48 kmph) (S16.1(a))                                       |
| <input type="checkbox"/>            |     | Belted 50 <sup>th</sup> male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))                        |
| <input type="checkbox"/>            |     | Unbelted 50 <sup>th</sup> male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))                      |
| <input type="checkbox"/>            |     | Unbelted 50 <sup>th</sup> male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))                      |

		Unbelted 50 <sup>th</sup> male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
	X	Unbelted 5 <sup>th</sup> female dummy driver (32 to 40 kmph) (S16.1(b))
	X	Unbelted 5 <sup>th</sup> female dummy passenger (32 to 40 kmph) (S16.1(b))
		40% Offset 0° Belted 5 <sup>th</sup> female dummy driver and passenger (0 to 40 kmph) (S18.1)
	21.	Sled Test: Unbelted 50 <sup>th</sup> male dummy driver and passenger (S13)
	22.	FMVSS 204 Indicant Test
X	23.	FMVSS 212 Indicant Test
X	24.	FMVSS 219 Indicant Test
X	25.	FMVSS 301 Frontal Indicant Test

For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high-speed film and high-speed digital video.

The vehicle appears to meet all of the performance requirements to which it was tested.

### SECTION 3

#### INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
 Test Date: 4/8/08

#### 5<sup>th</sup> Percentile Female Low Risk Deployments

##### 5<sup>th</sup> Percentile Female SN 124 Position 1 (Chin On Module) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	8
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	11.7
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	28.3
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	4.3
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	307.7
Neck Tension	2070 N	551
Neck Compression	2520 N	169
Chest g	60 g	9
Chest Displacement	52 mm	5
Left Femur	6805 N	32
Right Femur	6805 N	39

Second stage fire time of 200 ms; Injuries calculated on 0 ms to 325 ms

##### 5<sup>th</sup> Percentile Female SN 125 Position 2 (Chin On Rim) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	8
Peak Nij (Nte)	1.0	0.6
Time (ms)	NA	13.5
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	50.1
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	279.4
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	55.4
Neck Tension	2070 N	920
Neck Compression	2520 N	40
Chest g	60 g	17
Chest Displacement	52 mm	10
Left Femur	6805 N	6
Right Femur	6805 N	5

Second stage fire time of 200 ms; Injuries calculated on 0 ms to 325 ms

### SECTION 3

#### INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
 Test Dates: 4/8/08

#### 3-Year-Old Low Risk Deployments

##### 3-Year-Old SN 031 Position 1 (Chest On Instrument Panel) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	3 *
Peak Nij (Nte)	1.0	0.1
Time (ms)	NA	59.8
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	11.9
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	50.6
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	21.5
Neck Tension	1130 N	56
Neck Compression	1380 N	96
Chest g	55 g	3
Chest Displacement	34 mm	1

Second stage fire time of 200 ms; Injuries calculated on 0 ms to 100 ms

\* There was no valid data on the Head Y accelerometer during the 3-year-old P1 Low Risk Deployment test conducted on 4-8-08. The HIC 15 data is included for reference only.

##### 3-Year-Old SN 031 Position 2 (Head On Instrument Panel) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	0
Peak Nij (Nte)	1.0	0.0
Time (ms)	NA	20.8
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	12.8
Peak Nij (Nce)	1.0	0.2
Time (ms)	NA	45.1
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	54.4
Neck Tension	1130 N	27
Neck Compression	1380 N	284
Chest g	55 g	3
Chest Displacement	34 mm	0

Second stage fire time of 200 ms; Injuries calculated on 0 ms to 100 ms



**SECTION 3**  
**INJURY RESULT SUMMARY FOR FMVSS 208 TESTS**

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
 Test Date: 3/19/08

**6-Year-Old Low Risk Deployments**

**6-Year-Old SN 155 Position 1 (Chest On Instrument Panel) 4-9-08**

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	2
Peak Nij (Nte)	1.0	0.0
Time (ms)	NA	78.1
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	28.5
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	42.5
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	45.7
Neck Tension	1490 N	70
Neck Compression	1820 N	193
Chest g	60 g	5
Chest Displacement	40 mm	1

Second stage fire time of 200 ms; Injuries calculated on 0 ms to 100 ms

**6-Year-Old SN 155 Position 2 (Head On Instrument Panel) 4-9-08**

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	0
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	57.8
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	15.8
Peak Nij (Nce)	1.0	0.2
Time (ms)	NA	55.1
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	67.8
Neck Tension	1490 N	115
Neck Compression	1820 N	297
Chest g	60 g	2
Chest Displacement	40 mm	0

Second stage fire time of 200 ms; Injuries calculated on 0 ms to 100 ms

**SECTION 3**  
**INJURY RESULT SUMMARY FOR FMVSS 208 TESTS**

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
Test Date: 5/5/08

**40 kmph Frontal Crash**

Impact Angle: Zero degrees

Belted Dummies:     Yes   X   No  
Speed Range:     0 to 40 kmph   X   32 to 40 kmph  
    0 to 48 kmph     0 to 56 kmph

Test Speed: 39.9 kmph Test Weight: 1007.4 kg

Driver Dummy:   X   5<sup>th</sup> female     50<sup>th</sup> male  
Passenger Dummy:   X   5<sup>th</sup> female     50<sup>th</sup> male

**5<sup>th</sup> Percentile Female Frontal Crash Test**  
**Vehicles certified to S16.1(a), S16.1(b), or S18.1**

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	89	129
N <sub>te</sub>	1.0	0.6	0.5
N <sub>tf</sub>	1.0	0.2	0.3
N <sub>ce</sub>	1.0	0.9	0.1
N <sub>cf</sub>	1.0	0.2	0.2
Neck Tension	2620 N	994	842
Neck Compression	2520 N	293	562
Chest g	60 g	38	28
Chest Displacement	52 mm	9	2
Left Femur	6805 N	3992	6491
Right Femur	6805 N	3289	4715

## SECTION 4

### DISCUSSION OF TESTS

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
Test Dates: 3/11/08 – 5/5/08

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

There was no valid data on the Head Y accelerometer during the 3-year-old P1 Low Risk Deployment test conducted on 4-8-08. The HIC 15 data is included for reference only.

**SECTION 5**  
**TEST DATA SHEETS**

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
Test Dates: 3/11/08 – 5/5/08

# DATA SHEET 1

## COTR VEHICLE WORK ORDER

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
 Test Dates: 3/11/08 - 5/5/08

COTR Signature: Charles R. Case

Test to be performed for this vehicle are checked below:

<input checked="" type="checkbox"/>	1. Rear Outboard Seating Position Seat Belts (S4.1.2(b)) & (S4.2.4)
<input checked="" type="checkbox"/>	2. Air Bag Labels (S4.5.1)
<input checked="" type="checkbox"/>	3. Readiness Indicator (S4.5.2)
<input checked="" type="checkbox"/>	4. Passenger Air Bag Manual Cut-off Device (S4.5.4)
<input checked="" type="checkbox"/>	5. Lap Belt Lockability (S7.1.1.5)
<input checked="" type="checkbox"/>	6. Seat Belt Warning System (S7.3)
<input checked="" type="checkbox"/>	7. Seat Belt Contact Force (S7.4.4)
<input checked="" type="checkbox"/>	8. Seat Belt Latch Plate Access (S7.4.4)
<input checked="" type="checkbox"/>	9. Seat Belt Retraction (S7.4.5)
<input checked="" type="checkbox"/>	10. Seat Belt Guides and Hardware (S7.4.6)
<input checked="" type="checkbox"/>	11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints.

### Section B

<input checked="" type="checkbox"/>	Britax Handle with Care 191	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
<input checked="" type="checkbox"/>	Evenflo First Choice 204	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
<input checked="" type="checkbox"/>	Graco Infant 8457	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward

### Section C

<input checked="" type="checkbox"/>	Britax Roundabout 161	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
<input checked="" type="checkbox"/>	Century Encore 4612	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
<input checked="" type="checkbox"/>	Evenflo Medallion 254	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
<input checked="" type="checkbox"/>	12. Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints.						

### Section A

<input checked="" type="checkbox"/>	Cosco Dream Ride 02-719	<input checked="" type="checkbox"/>	Full Rearward	<input checked="" type="checkbox"/>	Mid Position	<input checked="" type="checkbox"/>	Full Forward
	13. Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required.						

### Section C

	Britax Roundabout 161		Full Rearward		Mid Position		Full Forward
	Century Encore 4612		Full Rearward		Mid Position		Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
	Evenflo Medallion 254		Full Rearward		Mid Position		Full Forward

### Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
	Century Next Step 4920		Full Rearward		Mid Position		Full Forward
	Cosco High Back Booster 02-442		Full Rearward		Mid Position		Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

14. Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Appendix H, Data Sheet 16H and 17H)

### Section C

	Britax Roundabout 161		Full Rearward		Mid Position		Full Forward
	Century Encore 4612		Full Rearward		Mid Position		Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
	Evenflo Medallion 254		Full Rearward		Mid Position		Full Forward

### Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
	Century Next Step 4920		Full Rearward		Mid Position		Full Forward
	Cosco High Back Booster 02-442		Full Rearward		Mid Position		Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

15. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following Forward, Middle, and Rearward seat track positions

	Sitting on seat with back against seat back (S22.2.2.1)
	Sitting on seat with back against reclined seat back (S22.2.2.2)
	Sitting on seat with back not against seat back (S22.2.2.3)
	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
	Standing on seat, facing forward (S22.2.2.5)
	Kneeling on seat facing forward (S22.2.2.6)
	Kneeling on seat facing rearward (S22.2.2.7)
	Lying on seat (S22.2.2.8)

16. Suppression tests with representative 3-year-old child in the following positions

	Sitting on seat with back against seat back (S22.2.2.1)
	Sitting on seat with back against reclined seat back (S22.2.2.2)
	Sitting on seat with back not against seat back (S22.2.2.3)
	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
	Standing on seat, facing forward (S22.2.2.5)
	Kneeling on seat facing forward (S22.2.2.6)
	Kneeling on seat facing rearward (S22.2.2.7)
	Lying on seat (S22.2.2.8)

17. Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required.

#### Section D

<input type="checkbox"/>	Britax Roadster 9004	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Next Step 4920	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco High Back Booster 02-442	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Right Fit 245	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

- ☐ 18. Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required.

#### Section D

<input type="checkbox"/>	Britax Roadster 9004	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Next Step 4920	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco High Back Booster 02-442	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Right Fit 245	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

- ☐ 19. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following Forward, Middle, and Rearward seat track positions

<input type="checkbox"/>	Sitting on seat with back against seat back (S22.2.2.1)
<input type="checkbox"/>	Sitting on seat with back against reclined seat back (S22.2.2.2)
<input type="checkbox"/>	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
<input type="checkbox"/>	Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

- ☐ 20. Suppression tests with representative 6-year-old child in the following positions

<input type="checkbox"/>	Sitting on seat with back against seat back (S22.2.2.1)
<input type="checkbox"/>	Sitting on seat with back against reclined seat back (S22.2.2.2)
<input type="checkbox"/>	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
<input type="checkbox"/>	Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

- ☒ 21. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5<sup>th</sup> percentile female dummy (S20.3, 22.3, S24.3). Perform this test after the following suppression tests: After each restraint.

- ☐ 22. Test of Reactivation of the passenger air bag system with a representative 5<sup>th</sup> percentile female (S20.3, 22.3, S24.3). Perform this test after the following suppression tests:

- ☐ 23. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints.

#### Section B

<input type="checkbox"/>	Britax Handle with Care 191	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Assura 4553	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Avanta SE 41530	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Smart Fit 4543	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Arriva 02727	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Opus 35 02603	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Discovery Adjust Right 212	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo First Choice 204	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo On My Way Position Right V 282	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Graco Infant 8457	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

#### Section C

<input type="checkbox"/>	Britax Roundabout 161	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century Encore 4612	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Century STE 1000 4416	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Olympian 02803	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Cosco Touriva 02519	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Horizon V 425	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward
<input type="checkbox"/>	Evenflo Medallion 254	<input type="checkbox"/>	Full Rearward	<input type="checkbox"/>	Mid Position	<input type="checkbox"/>	Full Forward

- ☒ 24. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions
- ☒ Position 1
  - ☒ Position 2
- ☒ 25. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions
- ☒ Position 1
  - ☒ Position 2
- ☒ 26. Low risk deployment test with 5<sup>th</sup> percentile female dummy (Part 572, Subpart O) in the following positions
- ☒ Position 1
  - ☒ Position 2
- ☒ 27. Impact Tests
- ☐ Frontal Oblique – Test Speed:
    - ☐ Belted 50<sup>th</sup> male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
    - ☐ Unbelted 50<sup>th</sup> male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - ☐ Unbelted 50<sup>th</sup> male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
  - ☒ Frontal 0° - Test Speed: 39.9 kmph
    - ☐ Belted 50<sup>th</sup> male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - ☐ Belted 50<sup>th</sup> male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - ☐ Belted 5<sup>th</sup> female dummy driver (0 to 48 kmph) (S16.1(a))
    - ☐ Belted 5<sup>th</sup> female dummy passenger (0 to 48 kmph) (S16.1(a))
    - ☐ Belted 50<sup>th</sup> male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - ☐ Unbelted 50<sup>th</sup> male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
    - ☐ Unbelted 50<sup>th</sup> male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - ☐ Unbelted 50<sup>th</sup> male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - ☒ Unbelted 5<sup>th</sup> female dummy driver (32 to 40 kmph) (S16.1(b))
    - ☒ Unbelted 5<sup>th</sup> female dummy passenger (32 to 40 kmph) (S16.1(b))
  - ☐ 40% Offset 0° Belted 5<sup>th</sup> female dummy driver and passenger (0 to 40 kmph) (S18.1) – Test Speed:
- ☐ 28. Sled Test: Unbelted 50<sup>th</sup> male dummy driver and passenger (S13)
- ☐ 29. FMVSS 204 Indicant Test
- ☒ 30. FMVSS 212 Indicant Test
- ☒ 31. FMVSS 219 Indicant Test
- ☒ 32. FMVSS 301 Frontal Indicant Test



**DATA SHEET 2**  
**REPORT OF VEHICLE CONDITION**

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
Test Dates: 3/11/08 – 5/5/08

CONTRACT NO.: DTNH22-03-D-11002

Date: 5/9/08

FROM (Lab and rep name): MGA Research Corporation

TO: NHTSA, OVSC (NVS-220)

PURPOSE: (X) Initial Receipt      ( ) Received via Transfer      (X) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2008 Smart fortwo Sedan

MANUFACTURE DATE: 01/08

NHTSA NO. C80511

GVWR: 1050 kg (2315 lbs)

BODY COLOR: Black

GAWR (Fr): 440 kg (970 lbs)

VIN: WMEEJ31X58K107031

GAWR (Rr): 660 kg (1455 lbs)

ODOMETER READINGS: ARRIVAL (miles): 12

DATE: 3/6/08

COMPLETION (miles): 17

DATE: 5/5/08

PURCHASE PRICE: (\$) 15,260

DEALER'S NAME: Smart Car Milwaukee, 11330 metro Blvd., Milwaukee, WI 53224

- A. All options listed on window sticker are present on the test vehicle:  
X Yes      \_\_\_ No
- B. Tires and wheel rims are new and the same as listed: X Yes      \_\_\_ No
- C. There are no dents or other interior or exterior flaws: X Yes      \_\_\_ No
- D. The vehicle has been properly prepared and is in running condition:  
X Yes      \_\_\_ No
- E. Keyless remote is available and working: X Yes      \_\_\_ No
- F. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys: X Yes      \_\_\_ No
- G. Proper fuel filler cap is supplied on the test vehicle: X Yes      \_\_\_ No
- H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:  
X Yes      \_\_\_ No
- I. Place vehicle in storage area: X Yes      \_\_\_ No
- J. Inspect the vehicle's interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer's specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:  
X Vehicle OK      \_\_\_ Conditions reported below

## REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 301

VEHICLE: 2008 Smart fortwo NHTSA NO. C80511

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:

None

Explanation for equipment removal:

Not Applicable

Test Vehicle Condition:

25 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system; Shot added to Engine

RECORDED BY: Jeff Lewandowski DATE: 5/9/2008

APPROVED BY: David Winkelbauer DATE: 5/9/2008

#####

### RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date: Time: Odometer:

Lab Rep's Signature:

Title:

Carrier/Customer Rep:

Date:

### DATA SHEET 3

#### CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jamie Aide

NHTSA No.: C80511  
 Test Date: 5/5/08

Certification Label	
Manufacturer:	Daimler AG
Date of Manufacture:	01/08
VIN:	WMEEJ31X58K107031
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	Passenger Car
Front Axle GVWR:	440 kg (970 lbs)
Rear Axle GVWR:	660 kg (1455 lbs)
Total GVWR:	1050 kg (2315 lbs)

Tire Placard	
Not applicable, vehicle is not a passenger car and does not have a tire placard.	Passenger Car
This is not a passenger car, but all or part of this information is still contained on a vehicle label and is reported here.	Passenger Car
Vehicle Capacity Weight:	230 kg (507 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	N/A
Total Designated Seating Capacity:	2
Recommended Cold Tire Inflation Pressure Front:	200 kpa (29 psi)
Recommended Cold Tire Inflation Pressure Rear:	250 kpa (36 psi)
Recommended Tire Size:	Front:155/60 R15 Rear:175/55 R15

Signature: 

Date: 5/5/08

#### DATA SHEET 4

#### REAR OUTBOARD SEATING POSITION SEAT BELTS

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance  
Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
Test Date: 3/11/08

	Yes	No
Do all rear outboard seating positions have Type 2 seat belts?	X	

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS:

Signature: Jeff Lewandowski

Date: 3/11/08

# **DATA SHEET 5** **AIR BAG LABELS (S4.5.1)**

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
 Test Date: 3/11/08

- |                                     |     |  |
|-------------------------------------|-----|--|
| <input checked="" type="checkbox"/> | 1.  | Air bag maintenance label and owner's manual instructions: (S4.5.1(a))   |
| <input checked="" type="checkbox"/> | 1.1 | Does the manufacturer recommend periodic maintenance or replacement of the air bag?  |
|                                     |     | <input type="checkbox"/> Yes, go to 1.2  |
|                                     |     | <input checked="" type="checkbox"/> No – go to 2   |
| <input type="checkbox"/>            | 1.2 | Does the vehicle have a label specifying air bag maintenance or replacement?   |
|                                     |     | <input type="checkbox"/> Yes – Pass  |
|                                     |     | <input type="checkbox"/> No – Fail   |
| <input type="checkbox"/>            | 1.3 | Does the label contain one of the following?   |
|                                     |     | <input type="checkbox"/> Yes – Pass  |
|                                     |     | <input type="checkbox"/> No – Fail   |
|                                     |     | Check applicable schedule:   |
|                                     |     | ___ Schedule on label specifies month and year (Record date_____)  |
|                                     |     | ___ Schedule on label specified vehicle mileage (Record mileage_____)  |
|                                     |     | ___ Schedule on label specifies interval measured from date on certification label (Record interval_____)  |
| <input type="checkbox"/>            | 1.4 | Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or the sunvisor? (3/19/01 legal interpretation to Todd Mitchell) |
|                                     |     | <input type="checkbox"/> Yes – Pass  |
|                                     |     | <input type="checkbox"/> No – Fail   |
| <input type="checkbox"/>            | 1.5 | Is the label lettered in English?  |
|                                     |     | <input type="checkbox"/> Yes – Pass  |
|                                     |     | <input type="checkbox"/> No – Fail   |
| <input type="checkbox"/>            | 1.6 | Is the label in block capitals and numerals?   |
|                                     |     | <input type="checkbox"/> Yes – Pass  |
|                                     |     | <input type="checkbox"/> No – Fail   |
| <input type="checkbox"/>            | 1.7 | Are the letters and numerals at least 3/32 inches high?  |
|                                     |     | <input type="checkbox"/> Yes – Pass  |
|                                     |     | <input type="checkbox"/> No – Fail   |
| <input type="checkbox"/>            | 1.8 | Does the owner's manual set forth the recommended schedule for maintenance or replacement?   |
| <input checked="" type="checkbox"/> | 2.  | Does the owner's manual: (S4.5.1(f))   |
| <input checked="" type="checkbox"/> | 2.1 | Include a description of the vehicle's air bag system in an easily understandable format?  |
|                                     |     | <input checked="" type="checkbox"/> Yes – Pass   |
|                                     |     | <input type="checkbox"/> No – Fail   |
| <input checked="" type="checkbox"/> | 2.2 | Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position?   |
|                                     |     | <input checked="" type="checkbox"/> Yes – Pass   |
|                                     |     | <input type="checkbox"/> No – Fail   |

- ☒ 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating position?  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer from COTR) (S4.5.1(f)(2))  
☒ Yes – (Go to 2.7.1)  
☐ No – (Go to 3.)
- ☒ 2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))  
☒ Yes – Pass  
☐ No – Fail
- ☒ 2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?  
☒ Yes, continue with 2.7.6  
☐ No, go to 2.7.7
- ☒ 2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))  
☒ Yes – Pass  
☐ No – Fail

<input checked="" type="checkbox"/>	2.7.6.2	Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?
	<input checked="" type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input checked="" type="checkbox"/>	2.7.7	Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))
	<input checked="" type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input checked="" type="checkbox"/>	2.7.8	Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))
	<input checked="" type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input checked="" type="checkbox"/>	2.7.9	Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system? (S4.5.1(f)(2)(vii))
	<input checked="" type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input checked="" type="checkbox"/>	3.	Sun Visor Air Bag Warning Label (S4.5.1(b)) Check only one of the following:
	<input type="checkbox"/>	The vehicle is not certified to meet the requirements of S19, S21, and S23 (Obtain answer from COTR) (S4.5.1(b)(1)) Go to 3.1 and skip 3.2
	<input checked="" type="checkbox"/>	The vehicle is certified to meet the requirements of S19, S21, and S23 on 9/1/03 or later. (Obtain answer from COTR) (S4.5.1(b)(3)) Go to 3.2 and skip 3.1
<input type="checkbox"/>	3.1	Vehicles not certified to meet the requirements of S19, S21, and S23.
<input type="checkbox"/>	3.1.1	Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or sun visor? (S4.5.1(b)(1)) (3/19/01 legal interpretation to Todd Mitchell)
	<input type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail



3.1.2

Does the label conform in content to the label shown in either Figure 6A or 6B (Figure 6b is for vehicles with passenger air bag on-off switches), as appropriate, at each front outboard seating position? (S4.5.1(b)(1)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(1)(iv))



Figure 6a. Sun Visor Label Visible When Visor is in Down Position.



Figure 6b. Sun Visor Label Visible When Visor is in Down Position.



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail



3.1.3

Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(1)(i))



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail



3.1.4

Is the message area white with black text? (S4.5.1(b)(1)(ii))



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail



- ☐ 3.1.5 Is the message area at least 30 cm<sup>2</sup>? (S4.5.1(b)(1)(ii))  
 The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label and on the top by line that borders the yellow heading area. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the left most edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)  
 Driver Side: Length\_\_\_\_\_, Width\_\_\_\_\_  
 Passenger Side: Length\_\_\_\_\_, Width\_\_\_\_\_  
 Actual message area \_\_\_\_\_ cm<sup>2</sup>  
☐ Driver Side, Yes – Pass  
☐ Driver Side, No – Fail  
☐ Passenger Side, Yes – Pass  
☐ Passenger Side, No – Fail
- ☐ 3.1.6 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(iii))  
☐ Driver Side, Yes – Pass  
☐ Driver Side, No – Fail  
☐ Passenger Side, Yes – Pass  
☐ Passenger Side, No – Fail
- ☐ 3.1.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))  
 Actual diameter\_\_\_\_\_mm  
☐ Driver Side, Yes – Pass  
☐ Driver Side, No – Fail  
☐ Passenger Side, Yes – Pass  
☐ Passenger Side, No – Fail
- ☒ 3.2 Vehicles certified to meet the requirements of S19, S21, and S23 on 9/1/03 and later. (S4.5.1(b)(3))
- ☒ 3.2.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3)) (3/19/01 legal interpretation to Todd Mitchell)  
☒ Driver Side, Yes – Pass  
☐ Driver Side, No – Fail  
☒ Passenger Side, Yes – Pass  
☐ Passenger Side, No – Fail

X

3.2.2

Does the label conform in content to the label shown in Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(3)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front."(S4.5.1(b)(3)(v))



Figure 11. Sun Visor Label Visible when Visor is in Down Position.

X

Driver Side, Yes – Pass

Driver Side, No – Fail

X

Passenger Side, Yes – Pass

Passenger Side, No – Fail

X

3.2.3

Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(3)(i))

X

Driver Side, Yes – Pass

Driver Side, No – Fail

X

Passenger Side, Yes – Pass

Passenger Side, No – Fail

X

3.2.4

Is the message area white with black text? (S4.5.1(b)(3)(ii))

X

Driver Side, Yes – Pass

Driver Side, No – Fail

X

Passenger Side, Yes – Pass

Passenger Side, No – Fail

X

3.2.5

Is the message area at least 30 cm<sup>2</sup>? (S4.5.1(b)(3)(ii)) The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label. The top edge of the pictogram area is defined by a horizontal line midway between the uppermost edge of the pictogram and the lowermost edge of the text. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the left most edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Driver Side: Length 10.2 cm, Width 3.7 cm

Passenger Side: Length 10.2 cm, Width 3.7 cm

Actual message area 37.7 cm<sup>2</sup>

X

Driver Side, Yes – Pass

Driver Side, No – Fail

X

Passenger Side, Yes – Pass

Passenger Side, No – Fail

<input checked="" type="checkbox"/>	3.2.6	Is the pictogram black on a white background? (S4.5.1(b)(3)(iii))
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input checked="" type="checkbox"/>	3.2.7	Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(3)(iii))
		Driver Side: Length <u>52 mm</u>
		Passenger Side: Length <u>52 mm</u>
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input checked="" type="checkbox"/>	3.3	Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input checked="" type="checkbox"/>	3.4	Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))
	<input checked="" type="checkbox"/>	Driver Side, Yes – Pass
	<input type="checkbox"/>	Driver Side, No – Fail
	<input checked="" type="checkbox"/>	Passenger Side, Yes – Pass
	<input type="checkbox"/>	Passenger Side, No – Fail
<input checked="" type="checkbox"/>	3.5	Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?
		<input type="checkbox"/> Yes, go to 3.5.1
		<input checked="" type="checkbox"/> No, go to 4 (skipping 3.5.1 through 3.5.3)
<input type="checkbox"/>	3.5.1	Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?
		<input type="checkbox"/> Yes, go to 3.5.2 and skip 3.5.3
		<input type="checkbox"/> No, go to 3.5.3 and skip 3.5.2
<input type="checkbox"/>	3.5.2	Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))
		<input type="checkbox"/> actual distance
<input type="checkbox"/>	3.5.3	Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A))
		<input type="checkbox"/> actual distance
		<input type="checkbox"/> Yes-Pass <input type="checkbox"/> No-FAIL

- ☒ 4. Air Bag Alert Label (S4.5.1(c) (A "Rollover Warning Label" or "Rollover Alert Label" may be on the same side of the driver's sun visor as the "Air Bag Alert Label." 575.105(d))
- ☒ 4.1 Is the sun visor warning label visible when the sun visor is in the stowed position?
- ☒ **If yes for driver and passenger, go to 5.**
- ☒ Driver Side, Yes
- ☐ Driver Side, No
- ☒ Passenger Side, Yes
- ☐ Passenger Side, No
- ☐ 4.2 Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c)) (3/19/01 legal interpretation to Todd Mitchell)
- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail
- ☐ 4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))
- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail
- ☐ 4.4 Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))

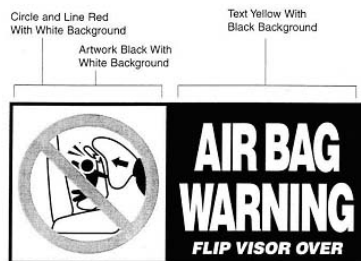


Figure 6c. Sun Visor Label Visible When Visor is in Up Position.

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail
- ☐ 4.5 Is the message area black with yellow text? (S4.5.1(c)(1))
- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

<input type="checkbox"/>	4.6	Is the message area at least 20 cm <sup>2</sup> ? (S4.5.1(c)(1)) The message area consists of the black part of the label.  Driver Side: Length_____, Width_____ Passenger Side: Length_____, Width_____ Actual message area _____ cm <sup>2</sup>  <input type="checkbox"/> Driver Side, Yes – Pass <input type="checkbox"/> Driver Side, No – Fail <input type="checkbox"/> Passenger Side, Yes – Pass <input type="checkbox"/> Passenger Side, No – Fail
<input type="checkbox"/>	4.7	Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))  <input type="checkbox"/> Driver Side, Yes – Pass <input type="checkbox"/> Driver Side, No – Fail <input type="checkbox"/> Passenger Side, Yes – Pass <input type="checkbox"/> Passenger Side, No – Fail
<input type="checkbox"/>	4.8	Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)) Driver Side Diameter _____mm Passenger Side Diameter _____mm  <input type="checkbox"/> Driver Side, Yes – Pass <input type="checkbox"/> Driver Side, No – Fail <input type="checkbox"/> Passenger Side, Yes – Pass <input type="checkbox"/> Passenger Side, No – Fail
<input checked="" type="checkbox"/>	5.	Label on the Dashboard
<input checked="" type="checkbox"/>	5.1	Is the vehicle certified to meet the requirements of S19, S21, and S23? (Obtain answer from COTR) (S4.5.1(e)(3))  <input checked="" type="checkbox"/> Yes, go to 5.1.1 and <b>skip 5.2</b> <input type="checkbox"/> No, go to 5.2, skipping 5.1.1 through 5.1.6
<input checked="" type="checkbox"/>	5.1.1	Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(3))  <input checked="" type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input checked="" type="checkbox"/>	5.1.2	Is the label clearly visible from all front seating positions? (S4.5.1(e)(3))  <input checked="" type="checkbox"/> Yes – Pass <input type="checkbox"/> No - Fail

- ☒ 5.1.3 Does the label conform in content to the label shown in Figure 12? (S4.5.1(e)(3))  
**Vehicles without back seats may omit the statement: "The back seat is the safest place for children." Vehicles without back seats or too small to accommodate a rear-facing child restraint consistent with S4.5.4.1 as determined in DATA SHEET 7 may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(e)(3)(iii))**

☒ Yes – Pass  
☐ No - Fail

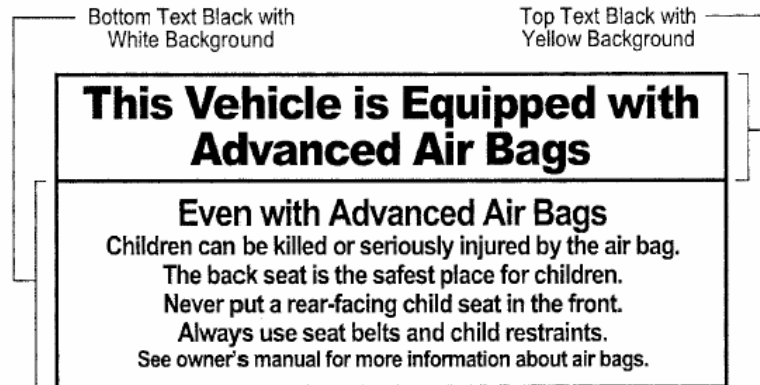


Figure 12. Removable Label on Dash.

- ☒ 5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(3)(i))  
☒ Yes – Pass  
☐ No - Fail
- ☒ 5.1.5 Is the message white with black text? (S4.5.1(e)(3)(ii))  
☒ Yes – Pass  
☐ No - Fail
- ☒ 5.1.6 Is the message area at least 30 cm<sup>2</sup>? (S4.5.1(e)(3)(ii)) The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)  
Length 10.7 cm Width 3.7 cm  
Actual message area 39.6 cm<sup>2</sup>  
☒ Yes – Pass  
☐ No - Fail
- ☐ 5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(1))  
☐ Yes – Pass  
☐ No - Fail
- ☐ 5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))  
☐ Yes – Pass  
☐ No - Fail

- ☐ 5.2.2 Does the label conform in content to the label shown in Figure 7? (S4.5.1(e)(1)(iii))  
Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(e)(1)(iii))

☐ Yes – Pass  
☐ No - Fail

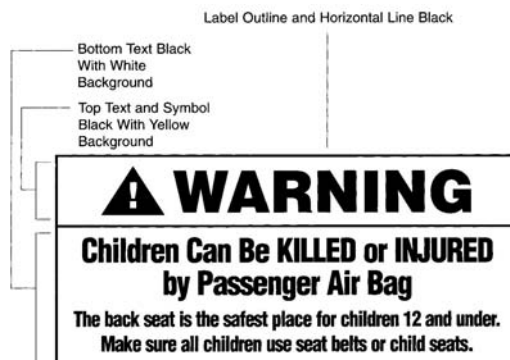


Figure 7. Removable Label on Dash.

- ☐ 5.2.3 Is the heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(e)(1)(i))

☐ Yes – Pass  
☐ No - Fail

- ☐ 5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))

☐ Yes – Pass  
☐ No - Fail

- ☐ 5.2.5 Is the message area at least 30 cm<sup>2</sup>? (S4.5.1(e)(1)(ii)) The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Length \_\_\_\_\_, Width \_\_\_\_\_

Actual message area \_\_\_\_\_ cm<sup>2</sup>

☐ Yes – Pass  
☐ No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Leavelle

Date: 3/11/08

## DATA SHEET 6

### FMVSS 208 READINESS INDICATOR (S4.5.2)

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance  
Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
Test Date: 3/11/08

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

- ☒ 1. Is the system totally mechanical? If Yes, this data sheet is complete.  
☐ Yes  
☒ No
- ☒ 2. Describe the location of the readiness indicator: *Overhead control panel*
- ☒ 3. Is the readiness indicator clearly visible to the driver?  
☒ Yes – Pass  
☐ No - Fail
- ☒ 4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner's manual?  
☒ Yes – Pass  
☐ No - Fail
- ☒ 5. Does the vehicle have an on-off switch for the passenger air bag?  
☐ If Yes, go to 6  
☒ If No, this form is complete.
- ☐ 6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?  
☐ Yes – Pass  
☐ No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lewandowski

Date: 3/11/08



## DATA SHEET 7

### PASSENGER AIR BAG MANUAL CUT-OFF DEVICE (S4.5.4)

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
 Test Date: 3/11/08

- |  |         |  |
|--|---------|--|
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px; display: flex; align-items: center; justify-content: center;">X</div> | 1.      | Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position?<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> Yes, go to 2<br/> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;">X</div> No, this sheet is complete                 </div>   |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 2.      | Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4.1(a))<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> Yes, go to 3<br/> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> No, go to 4                 </div>   |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.      | Verification there is room for a child restraint in the rear seat behind the driver's seat. (S4.5.4.1(b))  |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.1     | Using all the controls that affect the fore-aft movement of the seat, move the seat to the rearmost position. Mark this position.<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> N/A, the seat does not have fore-aft adjustment                 </div>   |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.2     | Using all the controls that affect the fore-aft movement of the seat, move the seat to the foremost position. Mark this position.<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> N/A, the seat does not have fore-aft adjustment                 </div>   |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.3     | Move the seat to the middle of the foremost and rearmost positions. (S8.1.2)<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> N/A, the seat does not have a fore-aft adjustment                 </div>  |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.4     | If the driver's seat height is adjustable, use all the controls that affect height to put it in the lowest position while maintaining the middle fore-aft position. (S8.1.2)<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> N/A, No seat height adjustment                 </div>   |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.5     | Position the driver's seat adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> N/A, No lumbar adjustment                 </div>  |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.6     | The driver's seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1(b) and S8.1.3)<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> N/A, No seat back angle adjustment<br/> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> Manufacturer's design driver's seat back angle _____<br/> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> Tested driver's seat back angle _____                 </div> |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.7     | Is the driver seat a bucket seat?<br><div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> Yes, go to 3.7.1 and skip 3.7.2.<br/> <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; display: flex; align-items: center; justify-content: center;"> </div> No, go to 3.7.2 and skip 3.7.1.                 </div>   |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.7.1   | Bucket seats:  |
| <div style="background-color: yellow; border: 1px solid black; width: 30px; height: 20px; margin: 2px;"></div>   | 3.7.1.1 | Locate and mark a vertical Plane B through the longitudinal centerline of the driver's seat cushion. The longitudinal centerline of a bucket seat cushion is determined at SgRP. (S16.3.1.10) (S4.5.4.1(b)(1))   |

<input type="checkbox"/>	3.7.1.2	Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat. _____ mm distance ___less than 720 mm – Pass ___more than 720 mm – <b>FAIL</b> Go to 4
<input type="checkbox"/>	3.2	Bench seats (including split bench seats):
<input type="checkbox"/>	3.7.2.1	Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline. (S4.5.4.1(b)(2))
<input type="checkbox"/>	3.7.2.2	Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat. _____ mm distance ___less than 720 mm – Pass ___more than 720 mm - <b>FAIL</b> Go to 4
<input type="checkbox"/>	4.	Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2) <input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	5.	Is the on-off device separate from the ignition switch? (S4.5.4.2) <input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	6.	Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2) <input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	7.	Telltale light (S4.5.4.3)
<input type="checkbox"/>	7.1	Is the light yellow? S4.5.4.3(a) <input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	7.2	Are the words "PASSENGER AIR BAG OFF" or "PASS AIR BAG OFF" (S4.5.4.3(b))
<input type="checkbox"/>	7.2.1	on the telltale? <input type="checkbox"/> Yes – Pass, go to 7.3 <input type="checkbox"/> No – go to 7.2.2
<input type="checkbox"/>	7.2.2	Within 25 mm of the telltale? Measurement from the edge of the telltale light (mm): <input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail
<input type="checkbox"/>	7.3	Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c) (Leave the air bag off for 5 minutes.) <input type="checkbox"/> Yes – Pass <input type="checkbox"/> No – Fail

<input type="checkbox"/>	7.4	Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))
	<input type="checkbox"/>	Yes – Fail
	<input type="checkbox"/>	No – Pass
<input type="checkbox"/>	7.5	Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))
	<input type="checkbox"/>	Yes – Fail
	<input type="checkbox"/>	No – Pass
<input type="checkbox"/>	8.	Owner's Manual
<input type="checkbox"/>	8.1	Does the owner's manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	8.2	Does the owner's manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))
	Infants:	there is no back seat
		the rear seat is too small to accommodate a child restraint
		there is a medical condition that must be monitored constantly
	Children	there is no back seat
	aged	space is not always available in the rear seat
	1 to 12:	there is a medical condition that must be monitored constantly
	Medical	medical risk causes special risk for passenger
	condition:	greater risk for harm than with the air bag on
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail
<input type="checkbox"/>	8.3	Does the owner's manual contain a warning about the safety consequences of using the on-off switch at other times?
	<input type="checkbox"/>	Yes – Pass
	<input type="checkbox"/>	No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Levanburgh

Date: 3/11/08

## DATA SHEET 8

### LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger  
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance  
Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
Test Date: 3/11/08

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Front Passenger
------------------------------	-----------------

<input type="checkbox"/>		N/A – no retractor is at this position	
<input type="checkbox"/>		N/A – the retractor is an automatic locking retractor ONLY	
<input checked="" type="checkbox"/>	1.	Record test fore-aft seat position: FULL AFT (S7.1.1.5(c)(1)) (Any position is acceptable)	
<input checked="" type="checkbox"/>	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does <b>NOT</b> have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does <b>NOT</b> require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	
<input checked="" type="checkbox"/>	4.	Place any adjustable seat belt anchorage in the lowest adjustment position.	
		<input checked="" type="checkbox"/> N/A The anchorage is not adjustable.	
<input checked="" type="checkbox"/>	5.	Buckle the seat belt. (S7.1.1.5(c)(1))	
<input checked="" type="checkbox"/>	6.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))	
<input checked="" type="checkbox"/>	7.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))	
<input checked="" type="checkbox"/>	8.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?	
		<input checked="" type="checkbox"/> Yes, go to 8.1	
		<input type="checkbox"/> No, go to 9.	
<input checked="" type="checkbox"/>	8.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))	
		<input checked="" type="checkbox"/> Yes – Pass	
		<input type="checkbox"/> No – Fail	

- |   |  |
|---|--|
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) &amp; S7.1.1.5(c)(1))</p>  |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))</p>  |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>Measured distance between A and B (inches): <u>77 inches</u></p>  |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))</p>   |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))</p>              |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>Measured force application angle (Spec. 5-15 degrees): <u>10°</u></p>   |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))</p>   |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>Measured distance between A and B (inches): <u>41 inches</u></p>  |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))</p> |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): <u>20lbs./sec</u></p>  |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>Measured distance between A and B (inches) (S7.1.1.5(c)(6)): <u>41 5/8 inches</u></p>   |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled</p>  |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))</p>              |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>Measured force application angle <u>10°</u> spec. 5 - 15 degrees)</p>   |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))</p>   |
| <div style="border: 1px solid black; background-color: yellow; text-align: center; width: 30px; height: 20px; margin-bottom: 10px;">X</div> | <p>Measured distance between A and B <u>28 1/2 inches</u></p>  |

- ☒ 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))  
Record onset rate 20lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))  
Measured distance between A and B 28 3/4 inches (S7.1.1.5(c)(6))
- ☒ 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))  
 $14-13 = 41 \frac{5}{8} - 41 = 5/8 \text{ inch}$   
 $18-17 = 28 \frac{3}{4} - 28 \frac{1}{2} = 1/4 \text{ inch}$   
☒ Yes – Pass  
☐ No – Fail
- ☒ 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))  
 $10-14 = 77 - 41 \frac{5}{8} = 35 \frac{3}{8} \text{ inches}$   
 $10-18 = 77 - 28 \frac{3}{4} = 48 \frac{1}{4} \text{ inches}$   
☒ Yes – Pass  
☐ No – Fail

## REMARKS:

I certify that I have read and performed each instruction.

Signature: \_\_\_\_\_

Jeff Levanbaugh

Date: \_\_\_\_\_

3/11/08

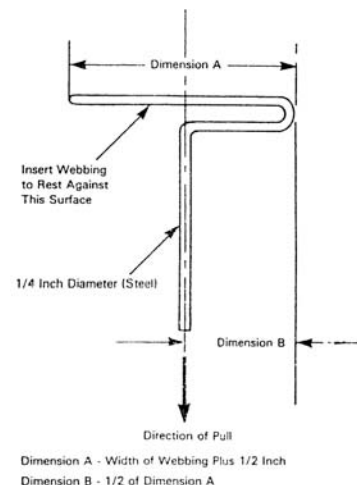


Figure 5. - Webbing Tension Pull Device

## DATA SHEET 9

### FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)


Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
 Test Date: 3/11/08

- |   |     |   |
|---|-----|---|
| X | 1.  | The occupant is in the driver's seat.   |
| X | 2.  | The seat belt is in the stowed position.  |
| X | 3.  | The key is in the "on" or "start" position.   |
| X | 4.  | The time duration of the audible signal beginning with key "on" or "start" is                   |
| X |     | Seconds: 6  |
| X | 5.  | The occupant is in the driver's seat.   |
| X | 6.  | The seat belt is in the stowed position.  |
| X | 7.  | The key is in the "on" or "start" position.   |
| X | 8.  | The time duration of the warning light beginning with key "on" or "start" is                    |
| X |     | Seconds: Stays On   |
| X | 9.  | The occupant is in the driver's seat.   |
| X | 10. | The seat belt is in the latched position and with at least 4 inches of belt webbing extended.   |
| X | 11. | The key is in the "on" or "start" position.   |
| X | 12. | The time duration of the warning light beginning with key "on" or "start" is                    |
| X |     | Seconds: 6  |
| X | 13. | Complete the following table with the data from 4, 8, and 12 to determine which option is used. |

		Warning light	Warning light specification	Audible signal	Audible signal specification*
S7.3 (a)(1)	Belt stowed & key on or start	Item 8: Stays On	60 seconds minimum	Item 4: 6	4 to 8 seconds
S7.3 (a)(2)	Belt latched & key on or start	Item 12: 6	4 to 8 seconds		
	Belt stowed & key on or start	Item 8: Stays On	4 to 8 seconds	Item 4: 6	4 to 8 seconds

\* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.  
 A voluntary audible signal after the 4 to 8 second required signal may be provided. It must be differentiated from the required signal (5/25/2001 legal interpretation to Longacre and Associates).

- ☒ 14. The seat belt warning system meets the requirements of (manufacturers may comply with either section)
- ☒ S7.3 (a)(1)
  - ☐ S7.3 (a)(2)
  - ☐ FAIL – does not meet the requirements of either option
- ☒ 15. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))
- ☐ Fasten seat belts
  - ☐ Fasten belts
  - ☒ Symbol 101 - 
  - ☐ FAIL – does not use any of the above wording or symbol

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Levanlaugh

Date: 3/11/08



# DATA SHEET 11

## LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
 Test Date: 1/17/08

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car
------------------------------	---

- |  |     |  |
|--|-----|--|
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 1.  | Put the seat in the forwardmost fore-aft and full down height position determined in Data Sheet 14.2. (S10.7)  |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 2.  | Put the seat back angle in the position determined in Data Sheet 14.2.   |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 3.  | Position the test dummy using the procedures in Appendix F. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix F positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) <b>Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.</b> |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 4.  | Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50 <sup>th</sup> percentile adult male occupant.   |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 5.  | Attach the inboard reach string to the base of the head following the instructions on Figure 3.  |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 6.  | Attach the outboard reach string to the torso sheath following the instructions on Figure 3.   |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 7.  | Place the latch plate in the stowed position.  |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 8.  | Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?   |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> Yes – Pass  |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> No  |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 9.  | Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?  |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> Yes – Pass  |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> No  |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 10. | Is the latch plate within the inboard (item 10) or outboard (item 11) reach envelope?  |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> Yes – Pass  |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> No – Fail   |
| <div style="background-color: yellow; width: 40px; height: 20px; margin: 0 auto;"></div> | 11. | Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?  |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> Yes – Pass  |
|  |     | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block; margin-right: 5px;"></div> No – Fail   |

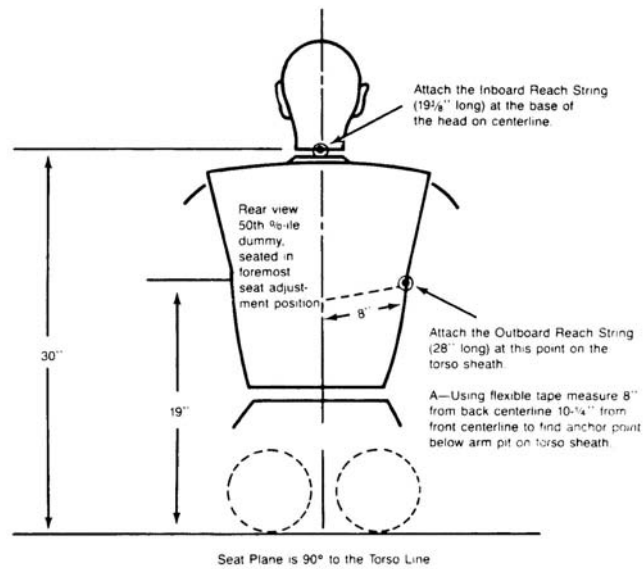


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

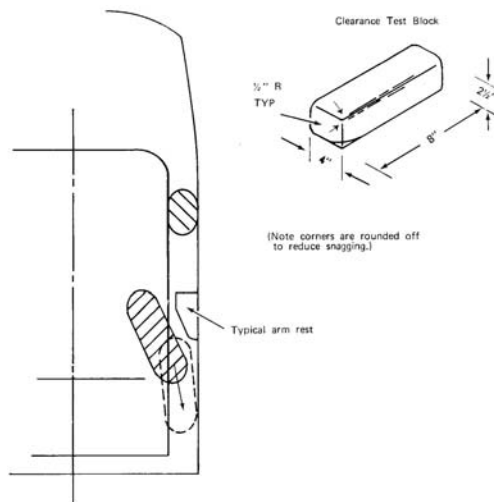


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Leavelle

Date: 1/17/08

## DATA SHEET 12

### SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
 Test Date: 1/17/08

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car
------------------------------	---

<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;">X</div>	1.	Is the vehicle a passenger car or walk-in van-type vehicle?	<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;">X</div>	Yes, this form is complete
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	No
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	2.	Put the seat in the mid fore-aft and full down height position determined in Data Sheet 14.2. (S8.1.2)		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	3.	Put the seat back angle in the position determined in Data Sheet 14.2. (8.1.3)		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	4.	Position the Part 572 Subpart E test dummy according to dummy position placement instructions in Appendix F. <b>Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.</b>		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	5.	Fasten the seat belt around the dummy.		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	6.	Remove all slack from the lap belt portion. (S10.9)		
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	N/A, the seat does not have a fore-aft adjustment
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	7.	Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	8.	Apply a 2 to 4 pound tension load to the lap belt. (S10.9)		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>		<b>Pound load applied:</b>		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	9.	Is the belt system equipped with a tension relieving device?		
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	___ Yes, continue
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	___ No, go to 12
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	10.	Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9).		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	11.	Check the statement that applies to this test vehicle:		
<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	11.1	The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.		
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	Yes – Pass go to 12
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	No – go to 11.2
	11.2	The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.		
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	Yes – Pass go to 12
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	No – go to 11.3
	11.3	Neither 11.1 nor 11.2 apply.		
			<div style="background-color: yellow; width: 20px; height: 20px; line-height: 20px; margin: 0 auto;"></div>	Fail

- ☐ 12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?
- ☐ N/A – Not an open body vehicle
- ☐ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Levanbaugh

Date: 1/17/08

## DATA SHEET 14

### MARKING OF REFERENCE POINTS FOR VARIOUS TEST POSITIONS AND POINTS

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance  
Test Technician: Brian Roach

NHTSA No.: C80511  
Test Date: 4/8/08

#### DATA SHEET 14.1

##### MARKING OF REFERENCE POINTS FOR 5<sup>th</sup> FEMALE

☒ Driver Seat ☐ Passenger Seat

##### 1. Seat Position

- ☒ 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1, S22.1.7.1)  
☒ N/A – No lumbar adjustment
- ☒ 1.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1, S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)  
☒ N/A – No additional support adjustment
- ☒ 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04 interpretation to Toyota)  
☒ N/A – No adjustable leg support system
- ☒ 1.4 **Mark** a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)
- ☒ 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point. (S16.3.1.13)
- ☒ 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)
- ☒ 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S20.1.9.3)  
☒ N/A – No independent fore-aft seat cushion adjustment
- ☒ 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle. (S16.2.10.3.1)  
Maximum angle Zero  
Minimum angle Zero  
Mid-angle Zero
- ☒ 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.8. (S16.2.10.3.1)  
☒ N/A – No seat height adjustment
- ☒ 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

- ☒ 1.11 Use only the controls that primarily move the seat in the fore-aft direction to **mark** for future reference the fore-aft seat positions. **Mark** each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.
- ☒ 1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.
- ☒ 1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)
- ☒ N/A – No seat height adjustment. Go to 1.18
- ☐ 1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.
- ☐ 1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)
- ☐ 1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)
- ☐ 1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)
- ☒ 1.18. Visually **mark** for future reference the seat back angle at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)
- ☐ N/A – No seat back angle adjustment
- Manufacturer's design seat back angle 19°
- ☒ 1.19. Is the seat a bucket seat?
- ☒ Yes, go to 1.20 and skip 1.21
- ☐ No, go to 1.21 and skip 1.20
- ☒ 1.20 Bucket seats:
- Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)
- ☐ 1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):
- ☐ 1.21.1 Driver Seat
- Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

\_\_\_ 1.21.2 Passenger Seat

Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. \_\_\_\_\_

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) \_\_\_\_\_

2. Head Restraint Position

\_\_\_ N/A Vehicle contains automatic head restraints.

☒ N/A, there is no head restraint adjustment

\_\_\_ 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

\_\_\_ 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

\_\_\_ 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance. (S16.3.4.3)

Vertical height of head restraint \_\_\_ mm

Mid-point height \_\_\_ mm

Brian Road

4/8/08

I certify that I have read and performed each instruction.

Date

## DATA SHEET 14.1

### MARKING OF REFERENCE POINTS FOR 5<sup>th</sup> FEMALE

☐ Driver Seat ☒ Passenger Seat

#### 1. Seat Position

- ☒ 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1, S22.1.7.1)  
☒ N/A – No lumbar adjustment
- ☒ 1.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1, S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)  
☒ N/A – No additional support adjustment
- ☒ 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04 interpretation to Toyota)  
☒ N/A – No adjustable leg support system
- ☒ 1.4 **Mark** a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)
- ☒ 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point. (S16.3.1.13)
- ☒ 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)
- ☒ 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S20.1.9.3)  
☒ N/A – No independent fore-aft seat cushion adjustment
- ☒ 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle. (S16.2.10.3.1)  
Maximum angle Zero  
Minimum angle Zero  
Mid-angle Zero
- ☒ 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.8. (S16.2.10.3.1)  
☒ N/A – No seat height adjustment
- ☒ 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.
- ☒ 1.11 Use only the controls that primarily move the seat in the fore-aft direction to **mark** for future reference the fore-aft seat positions. **Mark** each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.
- ☒ 1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.



- ☒ 1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)  
☒ N/A – No seat height adjustment. Go to 1.18
- ☐ 1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.
- ☐ 1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)
- ☐ 1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)
- ☐ 1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)
- ☒ 1.18. Visually **mark** for future reference the seat back angle at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)  
☐ N/A – No seat back angle adjustment  
 Manufacturer's design seat back angle 17°
- ☒ 1.19. Is the seat a bucket seat?  
☒ Yes, go to 1.20 and skip 1.21  
☐ No, go to 1.21 and skip 1.20
- ☒ 1.20 Bucket seats:  
 Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)
- ☐ 1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):
- ☐ 1.21.1 Driver Seat  
 Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.
- ☐ 1.21.2 Passenger Seat  
 Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))  
 Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. \_\_\_\_\_  
 Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) \_\_\_\_\_

2. Head Restraint Position

☐ N/A Vehicle contains automatic head restraints.

☒ N/A, there is no head restraint adjustment

☐ 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

☐ 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

☐ 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance. (S16.3.4.3)

Vertical height of head restraint  mm

Mid-point height  mm

Jeff Levanburgh

3/13/08

I certify that I have read and performed each instruction.

Date

### DATA SHEET 14.3

#### MARKING OF REFERENCE POINTS FOR STEERING WHEEL

- ☒ 1. Is the steering wheel adjustable up and down and/or in and out?  
\_\_\_ Yes – go to 2  
☒ No – this form is complete
- \_\_\_ 2. Find and **mark** for future reference each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.  
\_\_\_ N/A – steering wheel is not adjustable up and down
- \_\_\_ 3. Find and **mark** for future references each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.  
\_\_\_ N/A – steering wheel is not adjustable in and out.

I certify that I have read and performed each instruction.

Signature: Brian Roach

Date: 4/8/08

## DATA SHEET 14.4

### MARKING OF REFERENCE POINTS FOR DRIVER LOW RISK DEPLOYMENT

☒ Position 1   ☒ Position 2

- ☒ 1. Position the steering wheel so the front wheels are in the straight-ahead position. (S26.2.1)
- ☒ 2. Position any adjustable parts of the steering controls to the mid-position as determined in Data Sheet 14.3 above. If a mid-position adjustment is not achievable, position the controls to the next lowest detent position. (S26.2.1)
- ☒ 3. Locate and **mark** the point that is defined by the intersection of the steering wheel cover and a line between the volumetric center of the smallest volume that can encompass the folded undeployed air bag and the volumetric center of the static fully inflated air bag. The vertical plane parallel to the vehicle longitudinal centerline through this point is referred to as "Plane E." (Check determination method below.) (S26.2.2)
- Measurements with respect to measurement reference points:

---

The longitudinal centerline of the air bag was used.

---

☐ Point determined using manufacturer's information supplied by the COTR .  
(Include manufacturer's information in the test report.)

OR

☒ Point determined by test lab personnel and approved by the COTR.  
(Include supporting documentation in the test report.)

- ☒ 4. Locate the highest point of the air bag module cover. The horizontal plane through this point is referred to as "Plane F." (Check determination method below.) (S26.2.6)
- Measurements with respect to measurement reference points:

---

The top of the air bag module cover was used.

---

☐ Point determined using manufacturer's information supplied by the COTR .  
(Include manufacturer's information in the test report.)

OR

☒ Point determined by test lab personnel and approved by the COTR.  
(Include supporting documentation in the test report.)

Brian Roach

I certify that I have read and performed each instruction.

4/8/08

Date

## DATA SHEET 14.5

### MARKING OF REFERENCE POINTS FOR PASSENGER LOW RISK DEPLOYMENT

X Position 1    X Position 2

- X Locate and **mark** the point that is defined by the intersection of the instrument panel and a line between the volumetric center of the smallest volume that can encompass the folded undeployed air bag and the volumetric center of the static fully inflated air bag. (S22.4.1.2, S24.4.1.2) The horizontal plane thru this point is referred to as "Plane C" (S22.4.1.4 and S24.4.1.4). The vertical plane parallel to the vehicle longitudinal centerline and through this point is referred to as "Plane D" (S22.4.1.3 and S24.4.1.3). (Check determination method below.)  
Measurements with respect to measurement reference points:
- 
- 

- X Point determined using manufacturer's information supplied by the COTR .  
(Include manufacturer's information in the test report.) See Appendix D-36  
OR  
\_\_\_ Point determined by test lab personnel and approved by the COTR.  
(Include supporting documentation in the test report.)

Brian Roach

I certify that I have read and performed each instruction.

4/8/08

Date

## DATA SHEET 16

### AIR BAG SUPPRESSION TELLTALE (S19.2.2)

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance  
Test Technician: Jeff Lewandowski

NHTSA No.: C80511  
Test Date: 3/13/08

- ☒ 1. Is the vehicle certified to any suppression performance standards of FMVSS 208?  
☒ Yes – go to 2  
☐ No – this form is complete
- ☒ 2. Does telltale emit yellow light when the air bag is suppressed? (S19.2.2(a))  
☒ Yes - Pass **NO – FAIL**
- ☒ 3. Are the words “PASSENGER AIR BAG OFF” or “PASS AIR BAG OFF” (S19.2.2(b))  
☒ 3.1 on the telltale? (S19.2.2(b))  
☒ Yes – Pass, go to 4  
☐ No – go to 3.2
- ☐ 3.2 Within 25 mm of the telltale? (S19.2.2(b)) ☐ mm from the edge of the telltale light  
☐ Yes - Pass **NO – FAIL**
- ☒ 4. Is the telltale separate from the air bag readiness indicator? (S19.2.2(c))  
☒ Yes - Pass **NO – FAIL**
- ☒ 5. Is the telltale within the interior of the vehicle? (S19.2.2(d))  
☒ Yes - Pass **NO – FAIL**
- ☒ 6. Is the telltale forward of and above the design H-point of both the driver’s and the front outboard passenger’s seat when the seats are in their forwardmost seating positions? (S19.2.2(d))  
☒ Yes - Pass **NO – FAIL**
- ☒ 7. Is the telltale away from surfaces that can be used for temporary or permanent storage of objects that could obscure the telltale from either the driver’s or front outboard passenger’s view? (S19.2.2(d))  
☒ Yes - Pass **NO – FAIL**
- ☒ 8. Is the telltale located so that it is not obscured from the driver or front outboard passenger by a rear-facing child restraint in Appendix A installed in the front outboard passenger seat? (S19.2.2(d))  
☒ Yes - Pass **NO – FAIL**
- ☒ 9. Is the telltale visible or recognizable during the night? (S19.2.2(e))  
☒ Yes - Pass **NO – FAIL**
- ☒ 10. Is the telltale visible or recognizable during the day? (S19.2.2(e))  
☒ Yes - Pass **NO – FAIL**
- ☒ 11. If there is a visibility adjustment, do all the adjustment levels make the telltale visible and recognizable? (S19.2.2(g))  
☒ N/A-No visibility adjustment  
☐ Yes - Pass **NO – FAIL**
- ☒ 12. Does the telltale remain illuminated while the air bag is suppressed? (S19.2.2(h)) (Leave the air bag suppressed for 5 minutes.)  
☒ Yes - Pass **NO – FAIL**
- ☒ 13. Is the telltale off while the air bag is activated? (S19.2.2(h)) (Leave the air bag activated for 5 minutes.)  
☒ Yes - Pass **NO – FAIL**

Jeff Lewandowski

3/13/08

I certify that I have read and performed each instruction.

Date

## DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)  
Section B Rear Facing CRS

NHTSA NO.:	C80511	TEST DATE:	3/13/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Handle With Care 191
DATE OF MANUFACTURE:	5-26-2000

Base: \_\_On \_\_Off X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Manufacturer's specified anchorage position: Fixed  
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

### Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	131	Suppressed
	Middle	133	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

## DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)  
Section B Rear Facing CRS

NHTSA NO.:	C80511	TEST DATE:	3/13/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	First Choice 204
DATE OF MANUFACTURE:	6-20-2000

Base: \_\_On \_\_Off X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Manufacturer's specified anchorage position: Fixed  
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

### Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	129	Suppressed
	Middle	130	Suppressed
	Rearward	131	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)



## DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)  
Section B Rear Facing CRS

NHTSA NO.:	C80511	TEST DATE:	3/13/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: ☒ On ☐ Off ☐ N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Manufacturer's specified anchorage position: Fixed  
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

### Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	129	Suppressed
	Middle	131	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

## DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)  
Section B Rear Facing CRS

NHTSA NO.:	C80511	TEST DATE:	3/13/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: \_\_On XOff \_\_N/A-Constraint does not have a removable base

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Manufacturer's specified anchorage position: Fixed  
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

### Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	127	Suppressed
	Middle	129	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

### DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)  
Section C Forward Facing Convertible CRS

NHTSA NO.:	C80511	TEST DATE:	3/14/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Base: \_\_On \_\_Off X N/A-Constraint does not have a removable base

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Manufacturer's specified anchorage position: Fixed  
Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

#### Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	132	Suppressed
	Middle	130	Suppressed
	Rearward	132	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	132	Suppressed
	Middle	130	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

## DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)  
Section C Forward Facing Convertible CRS

NHTSA NO.:	C80511	TEST DATE:	3/14/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Base: \_\_On \_\_Off X N/A-Constraint does not have a removable base

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Manufacturer's specified anchorage position: Fixed  
Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

### Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	132	Suppressed
	Middle	129	Suppressed
	Rearward	132	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	132	Suppressed
	Middle	130	Suppressed
	Rearward	127	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

## DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)  
Section C Forward Facing Convertible CRS

NHTSA NO.:	C80511	TEST DATE:	3/14/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Base: ☐ On ☐ Off ☒ N/A-Constraint does not have a removable base

Manufacturer's design seat back angle: 17°  
 Tested seat back angle: 17°  
 Manufacturer's specified anchorage position: Fixed  
 Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

### Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	131	Suppressed
	Middle	133	Suppressed
	Rearward	133	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	127	Suppressed
	Middle	131	Suppressed
	Rearward	130	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

## DATA SHEET 18 SUMMARY

### Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K) Section A Car Bed

NHTSA NO.:	C80511	TEST DATE:	3/13/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	Newborn Infant	DUMMY SERIAL NO.:	003

CAR BED NAME:	Cosco
CAR BED MODEL:	Dream Ride 02-719
DATE OF MANUFACTURE:	6-16-2000

Base: \_\_On \_\_Off X N/A-Constraint does not have a removable base  
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Manufacturer's specified anchorage position: Fixed  
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

#### Test Summary

Seat Belt	Seat Slide	Result
Belted	Forward	Suppressed
	Middle	Suppressed
	Rearward	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

## DATA SHEET 25 SUMMARY

Low Risk Deployment Tests Using an Unbelted 3-Year-Old Dummy (Part 572, Subpart P) (S22)  
Position 1 – Chest On Instrument Panel (S22.4.2)

NHTSA NO.:	C80511	TEST DATE:	4/8/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	3-Year-Old	DUMMY SERIAL NO.:	031

Manufacturer's design seat back angle: 17°  
 Tested seat back angle: 17°  
 Tested seat position: Full Aft

Thorax cavity angle: 0.0°  
 Thigh angle: 51.0°  
 Point 1 height: 0 mm - At Plane C Air Bag Height

### Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	200.0	200.2

### 3-Year-Old SN 031 Position 1 (Chest on Instrument Panel) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	3
Peak Nij (Nte)	1.0	0.1
Time (ms)	NA	59.8
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	11.9
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	50.6
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	21.5
Neck Tension	1130 N	56
Neck Compression	1380 N	96
Chest g	55 g	3
Chest Displacement	34 mm	1

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

There was no valid data on the Head Y accelerometer during the 3-year-old P1 Low Risk Deployment test conducted on 4-8-08. The HIC 15 data is included for reference only.

**A new air bag and instrument panel cover were used for this deployment.**

## DATA SHEET 26 SUMMARY

Low Risk Deployment Tests Using an Unbelted 3-Year-Old Dummy (Part 572, Subpart P) (S22)  
Position 2 – Head On Instrument Panel (S22.4.3)

NHTSA NO.:	C80511	TEST DATE:	4/8/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	3-Year-Old	DUMMY SERIAL NO.:	031

Manufacturer's design seat back angle: 17°  
 Tested seat back angle: 17°  
 Tested seat position: Full Forward

Thorax cavity angle: 0.2°  
 Thigh angle: 12.0°

### Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	200.0	200.1

### 3-Year-Old SN 031 Position 2 (Head on Instrument Panel) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	0
Peak Nij (Nte)	1.0	0.0
Time (ms)	NA	20.8
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	12.8
Peak Nij (Nce)	1.0	0.2
Time (ms)	NA	45.1
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	54.4
Neck Tension	1130 N	27
Neck Compression	1380 N	284
Chest g	55 g	3
Chest Displacement	34 mm	0

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

**The original equipment parts were used for this deployment.**



## DATA SHEET 27 SUMMARY

Low Risk Deployment Tests Using an Unbelted 6-Year-Old Dummy (Part 572, Subpart P) (S24)  
Position 1 – Chest On Instrument Panel (S24.4.2)

NHTSA NO.:	C80511	TEST DATE:	4/9/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	6-Year-Old	DUMMY SERIAL NO.:	155

Manufacturer's design seat back angle: 17°  
 Tested seat back angle: 17°  
 Tested seat position: Full Aft

Thorax cavity angle: 6.0°  
 Point 1 height: 0mm - At Plane C Air Bag Height  
 (ATD contacted the roof)

### Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	200.0	200.2

### 6-Year-Old SN 155 Position 1 (Chest on Instrument Panel) 4-9-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	2
Peak Nij (Nte)	1.0	0.0
Time (ms)	NA	78.1
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	28.5
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	42.5
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	45.7
Neck Tension	1490 N	70
Neck Compression	1820 N	193
Chest g	60 g	5
Chest Displacement	40 mm	1

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

**A new air bag and instrument panel cover were used for this deployment.**

## DATA SHEET 28 SUMMARY

Low Risk Deployment Tests Using an Unbelted 6-Year-Old Dummy (Part 572, Subpart N) (S24)  
Position 2 – Head On Instrument Panel (S24.4.3)

NHTSA NO.:	C80511	TEST DATE:	4/9/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	6-Year-Old	DUMMY SERIAL NO.:	155

Manufacturer's design seat back angle: 17°  
Tested seat back angle: 17°  
Tested seat position: Full Forward

Thorax cavity angle: 42.3°  
Thigh angle: 8.0°

### Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	200.0	200.1

### 6-Year-Old SN 155 Position 2 (Head on Instrument Panel) 4-9-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	0
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	57.8
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	15.8
Peak Nij (Nce)	1.0	0.2
Time (ms)	NA	55.1
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	67.8
Neck Tension	1490 N	115
Neck Compression	1820 N	297
Chest g	60 g	2
Chest Displacement	40 mm	0

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

**A new air bag and instrument panel cover were used for this deployment.**

## DATA SHEET 29 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5<sup>th</sup> Percentile Female Dummy  
(Part 572, Subpart O) (S26) Position 1 - Chin On Module (S26.2)

NHTSA NO.:	C80511	TEST DATE:	4/8/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	5 <sup>th</sup> Percentile Female	DUMMY SERIAL NO.:	124

Manufacturer's design seat back angle: 19°  
 Tested seat back angle: 19°  
 Tested seat position: Full Aft

Tested steering wheel angle: 20.0°  
 Thorax cavity angle: 26.2°  
 Bottom of chin height: 19 mm Above Module

### Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	200.0	200.1

### 5<sup>th</sup> Percentile Female SN 124 Position 1 (Chin On Module) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	8
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	11.7
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	28.3
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	4.3
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	307.7
Neck Tension	2070 N	551
Neck Compression	2520 N	169
Chest g	60 g	9
Chest Displacement	52 mm	5
Left Femur	6805 N	32
Right Femur	6805 N	39

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))

Second stage fire time of 200 ms; Injuries calculated on 0 ms to 325 ms

**The original equipment parts were used for this deployment.**

### DATA SHEET 30 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5<sup>th</sup> Percentile Female Dummy  
(Part 572, Subpart O) (S26) Position 2 - Chin On Rim (S26.3)

NHTSA NO.:	C80511	TEST DATE:	4/8/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	5 <sup>th</sup> Percentile Female	DUMMY SERIAL NO.:	125

Manufacturer's design seat back angle: 19°  
 Tested seat back angle: 19°  
 Tested seat position: Full Aft

Tested steering wheel angle: 20.0°  
 Thorax cavity angle: 27.0°  
 Chin Point height: 7 mm Below Steering Wheel Target  
 Note: The chin on rim steering wheel target is 10 mm below the highest point on the steering wheel

#### Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	200.0	200.1

#### 5<sup>th</sup> Percentile Female SN 125 Position 2 (Chin On Rim) 4-8-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	8
Peak Nij (Nte)	1.0	0.6
Time (ms)	NA	13.5
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	50.1
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	279.4
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	55.4
Neck Tension	2070 N	920
Neck Compression	2520 N	40
Chest g	60 g	17
Chest Displacement	52 mm	10
Left Femur	6805 N	6
Right Femur	6805 N	5

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))  
 Second stage fire time of 200 ms; Injuries calculated on 0 ms to 325 ms

**A new air bag; and original equipment steering column and steering wheel were used for this deployment.**

## DATA SHEET 32

### VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jamie Aide

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

- |          |     |   |
|----------|-----|---|
| <u>X</u> | 1.  | Fill the transmission with transmission fluid to the satisfactory range.  |
| <u>X</u> | 2.  | Drain fuel from vehicle   |
| <u>X</u> | 3.  | Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.   |
| <u>X</u> | 4.  | Record the useable fuel tank capacity supplied by the COTR  |
| <u>X</u> |     | Useable Fuel Tank Capacity supplied by COTR: 33.0 liters (8.72 gallons)   |
| <u>X</u> | 5.  | Record the fuel tank capacity supplied in the owner's manual.   |
| <u>X</u> |     | Useable Fuel Tank Capacity in owner's manual: 33.0 liters (8.72 gallons)  |
| <u>X</u> | 6.  | Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank. |
| <u>X</u> |     | Amount Added: 33.0 liters (8.72 gallons)  |
| <u>X</u> | 7.  | Fill the coolant system to capacity.  |
| <u>X</u> | 8.  | Fill the engine with motor oil to the Max. mark on the dip stick.   |
| <u>X</u> | 9.  | Fill the brake reservoir with brake fluid to its normal level.  |
| <u>X</u> | 10. | Fill the windshield washer reservoir to capacity.   |
| <u>X</u> | 11. | Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner's manual.   |

Tire placard pressure:	RF:	29 psi	LF:	29 psi	RR:	36 psi	LR:	36 psi
Owner's manual pressure:	RF:	29 psi	LF:	29 psi	RR:	36 psi	LR:	36 psi
Actual inflated pressure:	RF:	29 psi	LF:	29 psi	RR:	36 psi	LR:	36 psi

- |          |     |  |
|----------|-----|--|
| <u>X</u> | 12. | Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight). |
|----------|-----|--|

Right Front (kg):	176.9	Right Rear (kg):	235.8
Left Front (kg):	178.3	Left Rear (kg):	231.8
Total Front (kg):	355.2	Total Rear (kg):	467.6
% Total Weight:	43.2	% Total Weight:	56.8
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):		822.8	

- |          |      |   |
|----------|------|---|
| <u>X</u> | 13.  | UVW Test Vehicle Attitude: (All dimensions in millimeters)  |
| <u>X</u> | 13.1 | Mark a point on the vehicle above the center of each wheel. |
| <u>X</u> | 13.2 | Place the vehicle on a level surface.                       |

- ☒ 13.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements

RF:	612	LF:	609	RR:	643	LR:	650
-----	-----	-----	-----	-----	-----	-----	-----

- ☒ 14. Calculate the Rated Cargo and Luggage Weight (RCLW): 94 kg
- ☒ 14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

- ☒ Yes, go to 14.3
- ☐ No, go to 14.2

- ☐ 14.2 VCW = Gross Vehicle Weight – UVW

$$VCW = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

- ☒ 14.3 VCW = 230 kg (507 lbs)

- ☒ 14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?

- ☒ Yes, go to 14.6
- ☐ No, go to 14.5 and skip 14.6

- ☐ 14.5 DSC = Total number of seat belt assemblies =

- ☒ 14.6 DSC = 2

- ☒ 14.7 RCLW = VCW – (68 kg x DSC) = 230 kg - (68 kg x 2) = 94 kg

- ☒ 14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?

- ☐ Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)
- ☒ No, use the RCLW calculated in 14.7

- ☒ 15. Fully Loaded Weight (100% fuel fill): 1014.7 kg

- ☒ 15.1 Place the appropriate test dummy in both front outboard seating positions.

Driver: X 5<sup>th</sup> female        50<sup>th</sup> male  
 Passenger: X 5<sup>th</sup> female        50<sup>th</sup> male

- ☒ 15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

- ☒ 15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))

- ☒ 15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

Right Front (kg):	205.5	Right Rear (kg):	308.4
Left Front (kg):	202.3	Left Rear (kg):	298.5
Total Front (kg):	407.8	Total Rear (kg):	606.9
% Total Weight:	40.2	% Total Weight:	59.8
% GVW	41.9	% GVW	62.9
(% GVW = Axle GVW divided by Vehicle GVW)			
Fully Loaded Weight = Total Front Plus Total Rear (kg):			1014.7

- ☒ 16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

- ☒ 16.1 Place the vehicle on a level surface.

- ☒ 16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements
- |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
| RF: | 586 | LF: | 587 | RR: | 603 | LR: | 610 |
|-----|-----|-----|-----|-----|-----|-----|-----|
- ☒ 17. Drain the fuel system
- ☒ 18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," fill the fuel tank to 92 - 94 percent of useable capacity.
- ☒ Fuel tank capacity x .94 = 33.0 liters (8.72 gallons) x .94 = 31.0 liters (8.20 gallons)
- ☒ Amount added 30.4 liters (8.02 gallons) 92.0%
- ☒ 19. Crank the engine to fill the fuel delivery system with Stoddard solvent
- ☒ 20. Calculate the test weight range.
- ☒ 20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)
- 1014.8 kg = 822.8 kg + 94.0 kg + 98.0 kg
- ☒ 20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)  
 Max. Test Weight = Calculated Test Weight - 4.5 kg = 1010.3 kg  
 Min. Test Weight = Calculated Test Weight - 9 kg = 1005.8 kg
- ☒ 21. Remove the RCLW from the cargo area.
- ☒ 22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.
- ☒ 23. Vehicle Components Removed For Weight Reduction:  
None
- ☒ 24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.
- ☒ 25. If necessary, add ballast to achieve the actual test weight.
- ☐ N/A
- ☒ Weight of Ballast: 72.6 kg
- ☒ 26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.
- ☒ 27. Record the vehicle weight at each wheel to determine the actual test weight.

Right Front (kg):	207.7	Right Rear (kg):	304.4
Left Front (kg):	197.3	Left Rear (kg):	298.0
Total Front (kg):	405.0	Total Rear (kg):	602.4
% Total Weight:	40.2	% Total Weight:	59.8
% GVW	41.9	% GVW	62.9
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			1007.4

<input checked="" type="checkbox"/>	28.	Is the test weight between the Max. Weight and the Min. Weight (See 20.2)?								
<input checked="" type="checkbox"/>		Yes								
<input type="checkbox"/>		No, explain why not.								
<input checked="" type="checkbox"/>	29.	Test Weight Vehicle Attitude: (all dimensions in millimeters)								
<input checked="" type="checkbox"/>	29.1	Place the vehicle on a level surface								
<input checked="" type="checkbox"/>	29.2	Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements								
<table border="1"> <tr> <td>RF:</td> <td>595</td> <td>LF:</td> <td>597</td> <td>RR:</td> <td>621</td> <td>LR:</td> <td>631</td> </tr> </table>			RF:	595	LF:	597	RR:	621	LR:	631
RF:	595	LF:	597	RR:	621	LR:	631			
<input checked="" type="checkbox"/>	30.	Summary of test attitude								
<input checked="" type="checkbox"/>	30.1	AS DELIVERED:								
<table border="1"> <tr> <td>RF:</td> <td>612</td> <td>LF:</td> <td>609</td> <td>RR:</td> <td>643</td> <td>LR:</td> <td>650</td> </tr> </table>			RF:	612	LF:	609	RR:	643	LR:	650
RF:	612	LF:	609	RR:	643	LR:	650			
AS TESTED:										
<table border="1"> <tr> <td>RF:</td> <td>595</td> <td>LF:</td> <td>597</td> <td>RR:</td> <td>621</td> <td>LR:</td> <td>631</td> </tr> </table>			RF:	595	LF:	597	RR:	621	LR:	631
RF:	595	LF:	597	RR:	621	LR:	631			
FULLY LOADED:										
<table border="1"> <tr> <td>RF:</td> <td>586</td> <td>LF:</td> <td>587</td> <td>RR:</td> <td>603</td> <td>LR:</td> <td>610</td> </tr> </table>			RF:	586	LF:	587	RR:	603	LR:	610
RF:	586	LF:	587	RR:	603	LR:	610			
<input checked="" type="checkbox"/>	30.2	Is the "as tested" test attitude equal to or between the "fully loaded" and "as delivered" attitude?								
<input checked="" type="checkbox"/>		Yes								
<input type="checkbox"/>		No, explain why not.								

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 5/5/08



### DATA SHEET 33

#### VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jamie Aide

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

- X

 1. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
- X

 2. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
- X

 3. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
- X

 4. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
- X

 5. Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart
- X

 6. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
- X

 7. Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart
- X

 8. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart

#### REMARKS:

I certify that I have read and performed each instruction.

Signature: \_\_\_\_\_

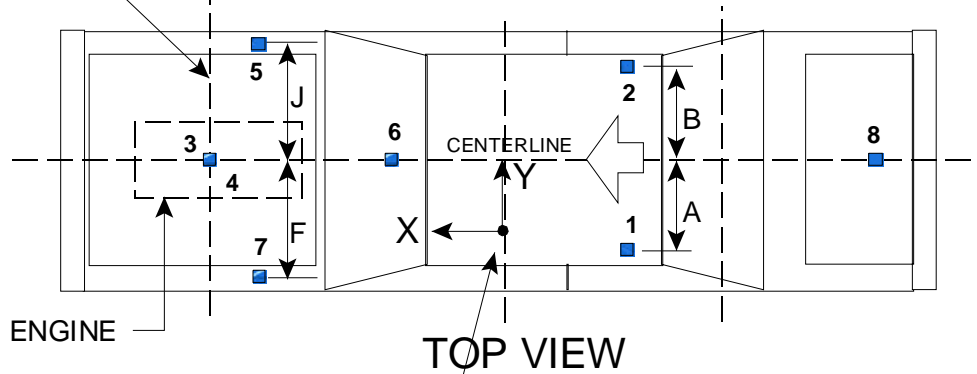


Date: \_\_\_\_\_

5/5/08

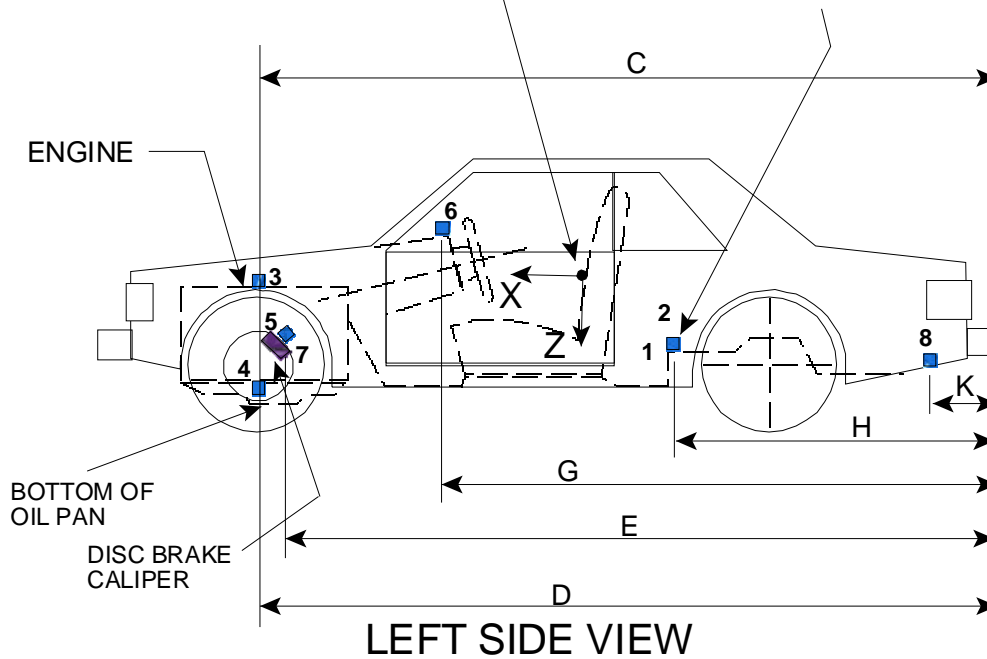
## VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

CENTERLINE OF  
FRONT WHEELS



ACCELEROMETER  
COORDINATE SYSTEM  
(POSITIVE DIRECTION SHOWN)

REAR SEAT CUSHION  
ASSY. FRONT ATTACHMENT  
BRACKET SUPPORT



Dimensions Corresponding To The Letters "A" Through "K" (Excluding "I") Are Recorded In The Table On The Following Page.  
Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.

**DATA SHEET 33**  
**VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS**

<u>DIMENSION</u>	<u>LENGTH (mm)</u>	
<u>PRETEST VALUES</u>		
<u>A</u> (LH Rear Seat Xmbr)	267	
<u>B</u> (RH Rear Seat Xmbr)	267	
<u>C</u> (Engine Top)	374	
<u>D</u> (Engine Bottom)	651	
<u>E</u> (Caliper)	Right Side: 2141	Left Side: 2141
<u>F</u> (Left Caliper)	550	
<u>G</u> (IP)	1989	
<u>H</u> (Seat)	560	
<u>J</u> (Right Caliper)	550	
<u>K</u> (Trunk)	152	
<u>POST TEST VALUES</u>		
<u>A</u> (LH Rear Seat Xmbr)	267	
<u>B</u> (RH Rear Seat Xmbr)	267	
<u>C</u> (Engine Top)	374	
<u>D</u> (Engine Bottom)	651	
<u>E</u> (Caliper)	Right Side: 2073	Left Side: 2071
<u>F</u> (Left Caliper)	550	
<u>G</u> (IP)	1989	
<u>H</u> (Seat)	560	
<u>J</u> (Right Caliper)	550	
<u>K</u> (Trunk)	152	

## DATA SHEET 34

### PHOTOGRAPHIC TARGETS



Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jamie Aide

NHTSA No.: C80511  
 Test Date: 5/5/08


IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

- |                                     |      |  |
|-------------------------------------|------|--|
| <input checked="" type="checkbox"/> | 1.   | FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B)   |
| <input checked="" type="checkbox"/> | 1.1  | Targets A1 and A2 are on flat rectangular panels.  |
| <input checked="" type="checkbox"/> | 1.2  | Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it.   |
| <input checked="" type="checkbox"/> |      | Distance between targets (mm): <u>100 mm</u>   |
| <input checked="" type="checkbox"/> | 1.3  | Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it. |
| <input checked="" type="checkbox"/> |      | Distance between targets (mm): <u>100 mm</u>   |
| <input checked="" type="checkbox"/> | 1.4  | The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm.   |
| <input checked="" type="checkbox"/> |      | Distance between the first and last circular targets (mm): <u>860 mm (The vehicle length could not accommodate 915 mm)</u>   |
| <input checked="" type="checkbox"/> | 1.5  | Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy.   |
| <input checked="" type="checkbox"/> | 1.6  | Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.  |
| <input checked="" type="checkbox"/> | 1.7  | Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart.              |
| <input checked="" type="checkbox"/> |      | Distance between targets (mm): <u>610 mm</u>   |
| <input checked="" type="checkbox"/> | 1.8  | Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart.           |
| <input checked="" type="checkbox"/> |      | Distance between targets (mm): <u>612 mm</u>   |
| <input checked="" type="checkbox"/> | 1.9  | Place tape with squares having alternating colors on the top portion of the steering wheel.  |
| <input checked="" type="checkbox"/> | 1.10 | Chalk the bottom portion of the steering wheel   |
| <input checked="" type="checkbox"/> | 1.11 | Is this an offset test?  |
| <input type="checkbox"/>            |      | Yes, continue with this section  |
| <input checked="" type="checkbox"/> |      | No, go to 2.   |
| <input type="checkbox"/>            | 1.12 | Measure the width of the vehicle.  |
| <input type="checkbox"/>            |      | Vehicle width (mm):  |

<input type="checkbox"/>	1.13	Find the centerline of the vehicle. ( $\frac{1}{2}$ of the vehicle width)
<input type="checkbox"/>	1.14	Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
<input type="checkbox"/>	1.15	Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D)
<input checked="" type="checkbox"/>	2.	Barrier Targeting
<input checked="" type="checkbox"/>	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy
<input checked="" type="checkbox"/>	2.2	Targets D1 and D2 are on a rectangular panel.
<input checked="" type="checkbox"/>	2.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.
<input checked="" type="checkbox"/>		Distance between circular targets on D1 (mm): <u>100 mm</u>
<input checked="" type="checkbox"/>		Distance between circular targets on D2 (mm): <u>100 mm</u>
<input checked="" type="checkbox"/>	3.	FMVSS 208 Dummy Targeting Requirements
<input checked="" type="checkbox"/>	3.1	Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
<input checked="" type="checkbox"/>	3.2	Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
<input checked="" type="checkbox"/>	3.3	Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
<input checked="" type="checkbox"/>	3.4	Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
<input checked="" type="checkbox"/>	4.	FMVSS 204 Targeting Requirements
<input checked="" type="checkbox"/>	4.1	Is an FMVSS 204 indicant test ordered on the "COTR Vehicle Work Order?"
<input type="checkbox"/>		Yes, continue with this form.
<input checked="" type="checkbox"/>		No, this form is complete.
<input type="checkbox"/>	4.2	Resection panel (Figure 28C)
<input type="checkbox"/>	4.2.1	The panel deviates no more than 6 mm from perfect flatness when suspended vertically
<input type="checkbox"/>	4.2.2	The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
<input type="checkbox"/>	4.2.3	The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
<input type="checkbox"/>	4.2.4	Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.
<input type="checkbox"/>	4.2.5	The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.

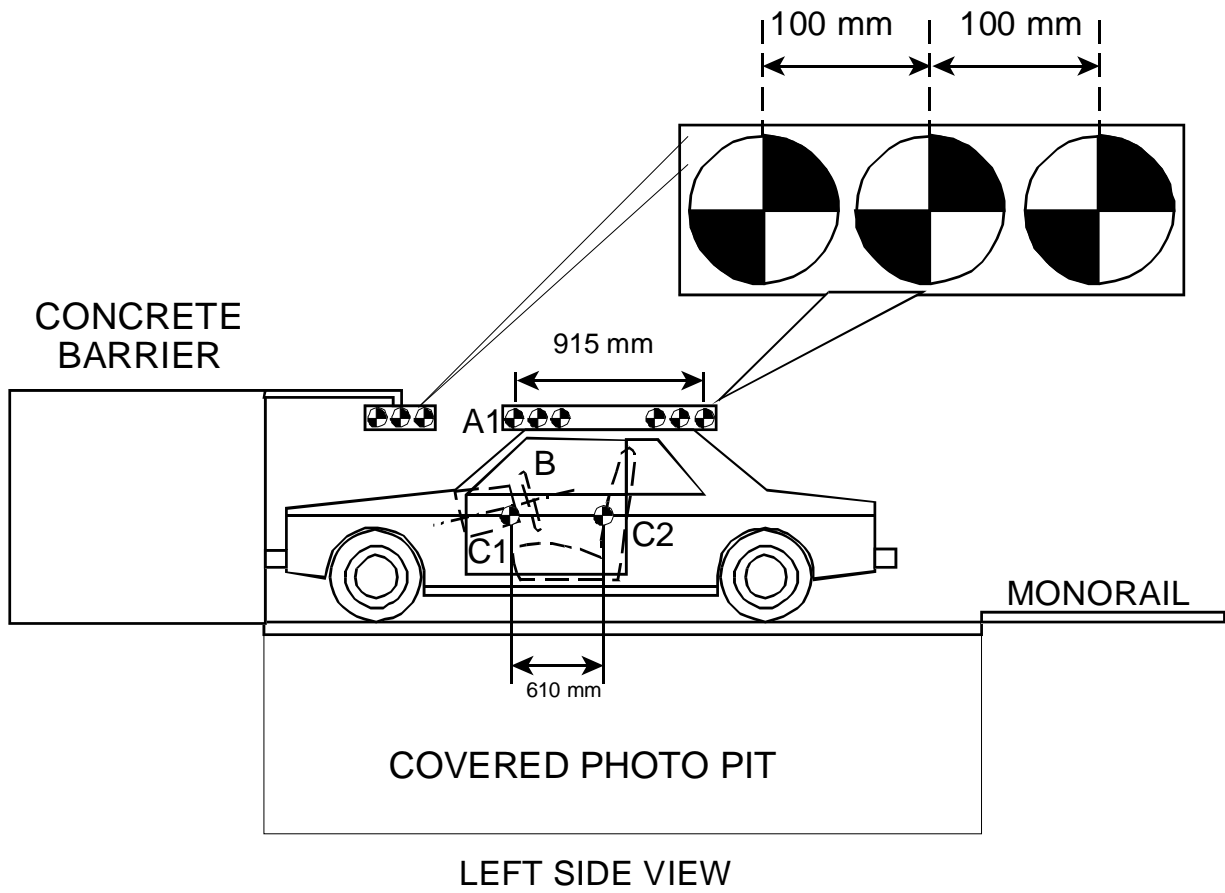
-  4.3 Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.
-  4.4 Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash

I certify that I have read and performed each instruction.

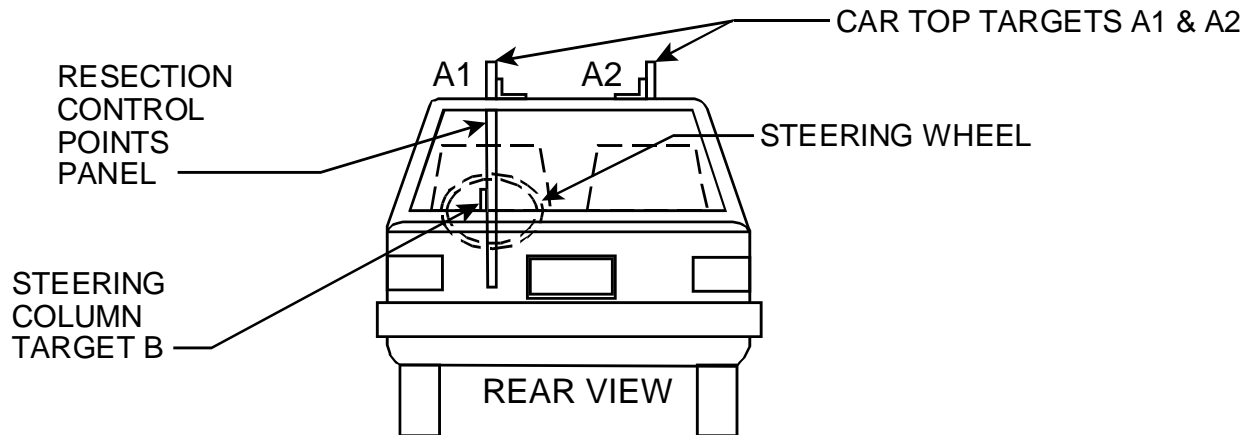
Signature: 

Date: 5/5/08

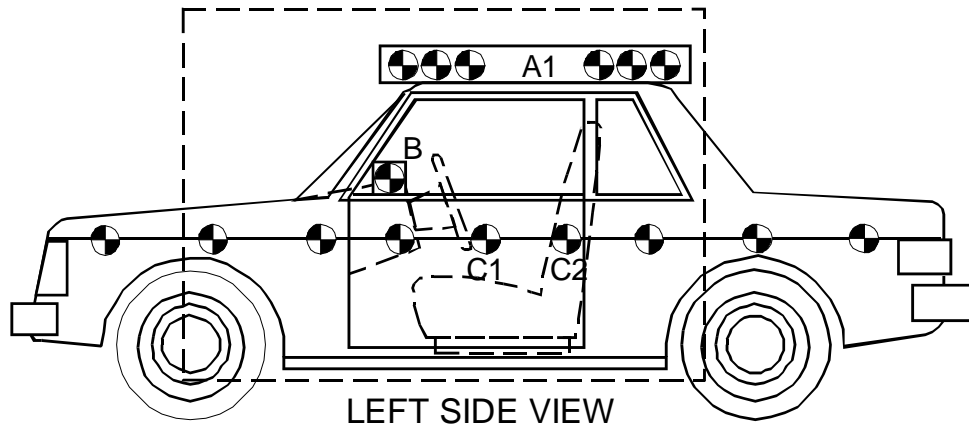
## REFERENCE PHOTO TARGETS



## RESECTION PANEL TARGETING ALIGNMENT

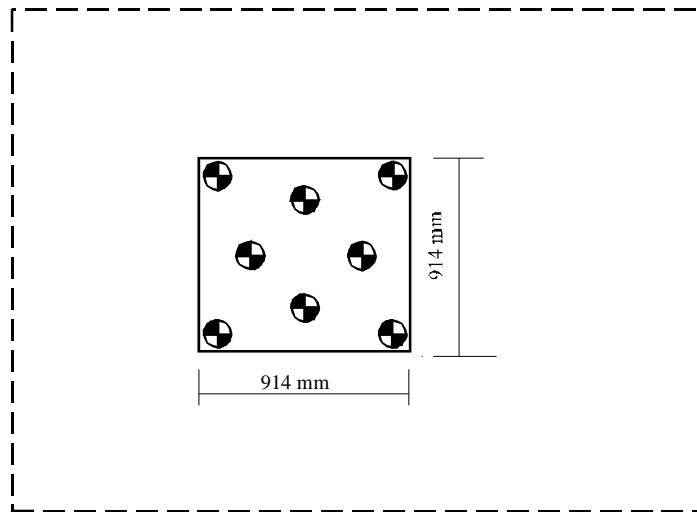


## TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION





## PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW



LEFT SIDE VIEW

**DATA SHEET 35**  
**CAMERA LOCATIONS**

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance

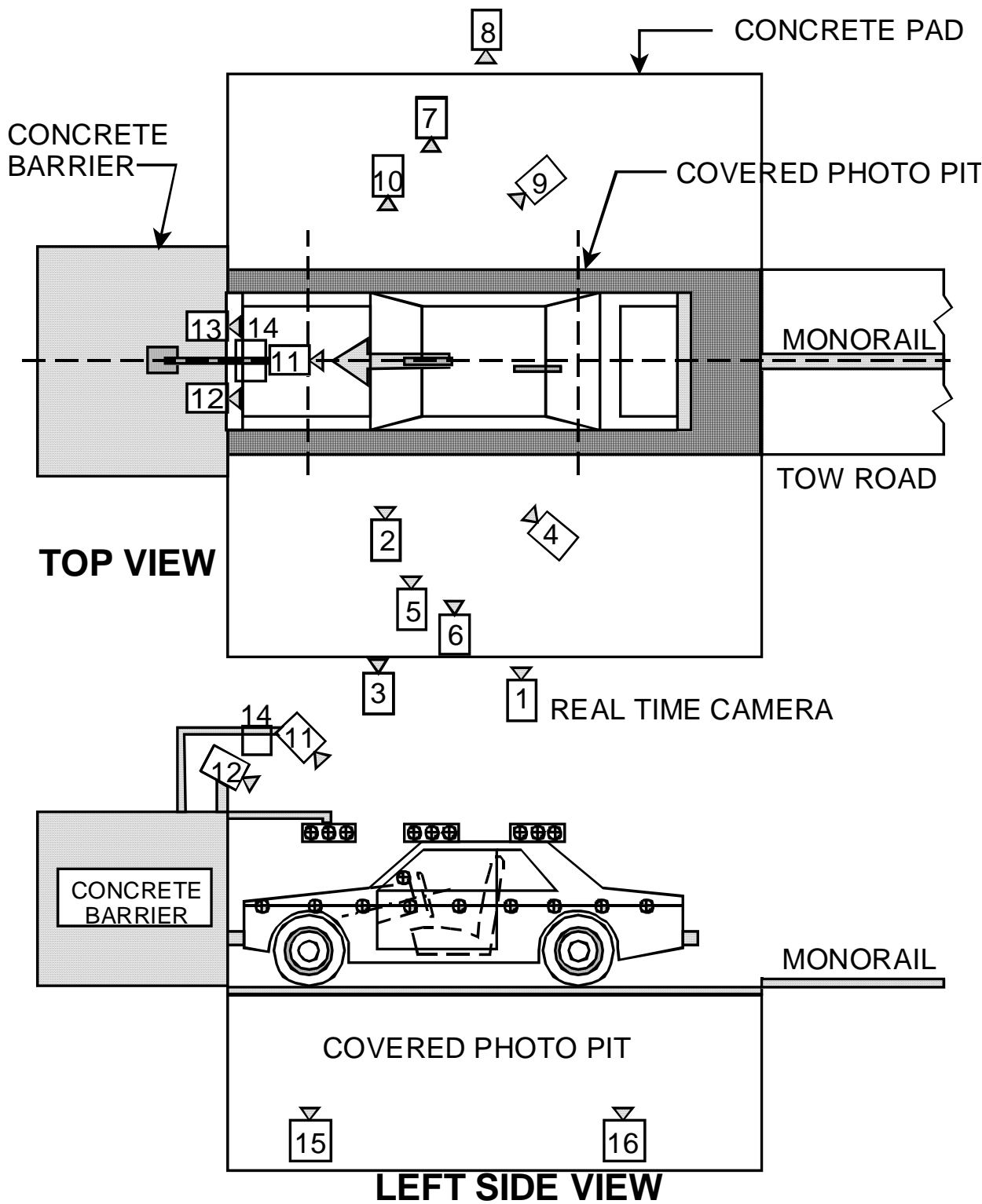
NHTSA No.: C80511  
Test Date: 5/5/08  
Time: 10:20 am

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			LENS (mm)	SPEED (fps)
		X	Y	Z		
1	Real Time Left Side View				13	24
2	Left Side View (Barrier face to front seat backs)	995	-4450	1245	24	1000
3	Left Side View (Driver)	1220	-4140	1285	24	1000
4	Left Side View (B-post aimed toward center of steering wheel)	4145	-4630	2025	50	1000
5	Left Side View (Steering Column)	665	-4360	1255	25	1000
6	Left Side View (Steering Column)	665	-4365	865	25	1000
7	Right Side View (Overall)	1480	4390	1220	19	1000
8	Right Side View (Passenger)	1235	4005	1265	24	1000
9	Right Side View (Angle)	4285	5005	2030	50	1000
10	Right Side View (Front door)	990	4945	1235	24	1000
11	Front View Windshield	-285	0	2830	12.5	1000
12	Front View Driver	-120	-375	2240	16	1000
13	Front View Passenger	-120	375	2240	16	1000
14	Overhead Barrier Impact View	1215	0	5050	14	1000
15	Pit Camera Engine View	1630	0	-3150	24	1000
16	Pit Camera Fuel Tank View	1020	0	-3150	24	1000

**\*COORDINATES:**

+X - forward of impact plane  
+Y - right of monorail centerline  
+Z - above ground level

**CAMERA POSITIONS FOR FMVSS 208**



**DATA SHEET 36**  
**APPENDIX G**  
**DUMMY POSITIONING PROCEDURES**  
**FOR 5<sup>th</sup>% DRIVER TEST DUMMY CONFORMING TO SUBPART O OF PART 572**

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Tim Bratz

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

- X 1. Using the markings made from data sheet 14.3 (If not done previously or steering repairs have been made, complete data sheet 14.3 at this time.) to position the steering controls in the mid-position or if applicable next lowest detent position. (S16.2.9)
- X 2. Place the SCRP in the full rearward, mid-height position, and mid-seat cushion angle, determined during the completion of Data Sheet 14.1. (S16.3.2.1.1)
- X 3. If the vehicle has an adjustable accelerator pedal, place it in the full forward position. (S16.3.2.2.1)  
X N/A accelerator pedal not adjustable
- X 4. Fully recline the seat back. (S16.3.2.1.2)  
   N/A seat back not adjustable.
- X 5. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.2.1.2)
- X 6. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in Data Sheet 14.1. (S16.3.2.1.3 and S16.3.2.1.4)
- X 7. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.2.1.5)
- X 8. Set the angle between the legs and the thighs to 120 degrees. (S16.3.2.1.6)
- X 9. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the longitudinal seat cushion marking as determined Data Sheet 14.1. (S16.3.2.1.6)  
 Record Knee Separation 167
- X 10. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.2.1.6)  
   Pelvis contacted seat back.  
X Calves contacted seat cushion.

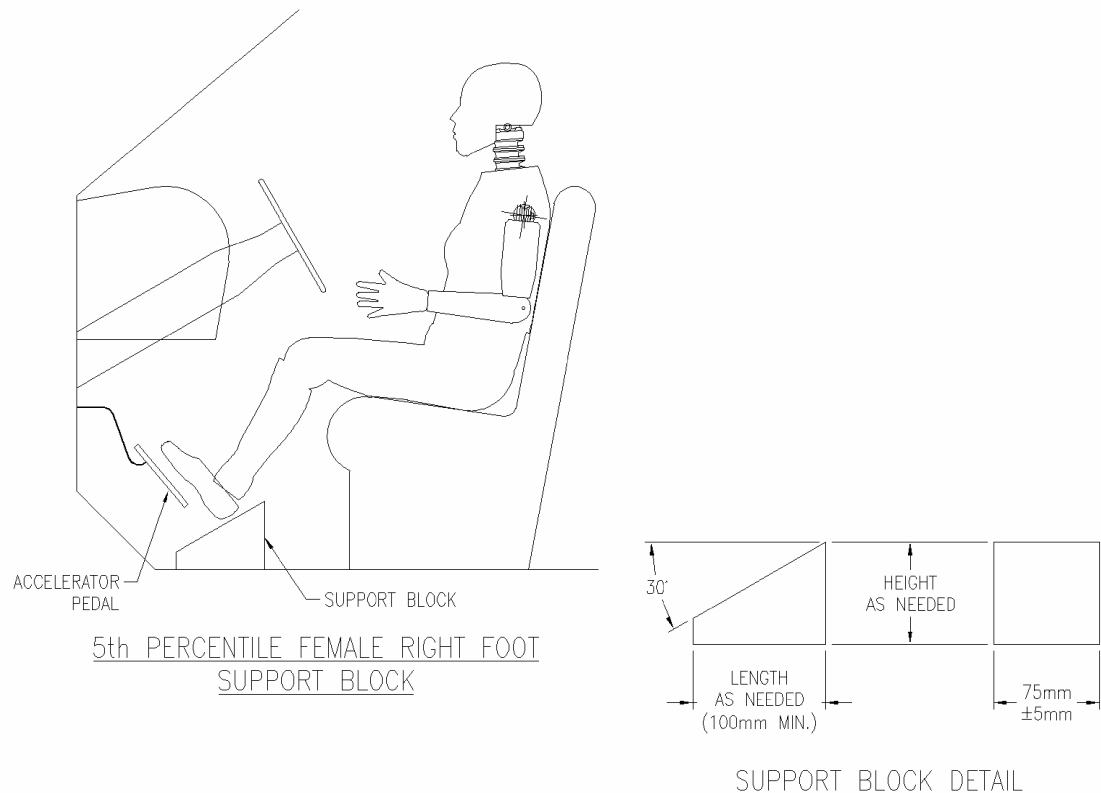
- ☒ 11. Gently rock the upper torso  $\pm 5$  degrees (approximately 51 mm (2 inches)) side-to-side three time. (S16.3.2.1.7)
- ☒ 12. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.2.1.8)
- ☒ 13. Position the right foot until the foot is in line with a longitudinal vertical plane passing through the center of the accelerator pedal. Maintain the leg and thigh in a vertical plane. (S16.3.2.1.8)
- ☒ 14. Rotate the left leg and thigh laterally to equalize the distance between each knee and the longitudinal seat cushion marking as determined in Data Sheet 14.1. (S16.3.2.1.8)
- ☒ 15. Attempt to return the seat to the foremost fore-aft position, mid-height, and seat cushion mid-angle as determined in Data Sheet 14.2. The foot may contact and depress the accelerator and/or change the angle of the foot with respect to the leg. (S16.3.2.1.8)  
\_\_\_ Foremost position achieved. Proceed to step 20.  
☒ Foremost not achieved because of foot interference. Proceed to step 17.  
\_\_\_ Foremost not achieved because of steering wheel contact.
- \_\_\_ 16. If either of the dummy's legs contact the steering wheel, move the steering wheel up the minimum amount required to avoid contact. If the steering wheel is not adjustable separate the knees the minimum required to avoid contact. (S16.3.2.1.8)  
\_\_\_ N/A- there was no leg contact  
\_\_\_ Steering wheel repositioned  
\_\_\_ Knees separated
- ☒ 17. If the left foot interferes with the clutch or brake pedals, rotate the left foot about the leg to provide clearance. If this is not sufficient, rotate the thigh outboard at the hip the minimum amount required for clearance. (S16.3.2.1.8)  
☒ N/A, No foot interference with pedals.  
\_\_\_ Foot adjusted to provide clearance.  
\_\_\_ Foot and Thigh adjusted to provide clearance.
- ☒ 18. Continue to move the seat. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14.1 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)  
\_\_\_ Foremost, mid-height position and the seat cushion mid-angle reached  
\_\_\_ Dummy contact. Clearance set at maximum of 5mm  
Measured Clearance \_\_\_\_\_  
☒ Dummy Contact. Seat set at nearest detent position.  
Seat position 1 detent positions rearward of foremost  
(foremost is position zero)

- ☐ 19. If the steering wheel was repositioned in step 16, return the steering wheel to the original position. If the steering wheel contacts the dummy before reaching the original position, position the wheel until a maximum clearance of 5mm (.2 inches) is achieved, or the steering wheel is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)
- ☐ N/A Steering wheel was not repositioned.
- ☐ Original position achieved.
- ☐ Dummy contact. Clearance set at maximum of 5mm  
Measured Clearance \_\_\_\_\_
- ☐ Dummy Contact. Steering wheel set at nearest detent position.  
Steering wheel position \_\_\_\_ detent positions upward of original position.  
(Original position is position zero)
- ☒ 20. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level  $\pm 0.5$  degrees. If the head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.2.1.9)
- ☒ Head Level Achieved. (Check all that apply)
- ☒ Head leveled using the adjustable seat back
- ☐ Head leveled using the neck bracket.  
Head Angle 0.1 degrees
- ☐ Head Level NOT Achieved. (Check all that apply)
- ☐ Head adjusted using the adjustable seat back
- ☐ Head adjusted using the neck bracket.  
Head Angle \_\_\_\_\_ degrees
- ☒ 21. Verify the pelvis is not interfering with the seat bight. (S16.3.2.1.9)
- ☒ No interference
- ☐ Pelvis moved forward the minimum amount so that it is not caught in the seat bight.
- ☒ 22. Verify the dummy abdomen is properly installed. (S16.3.2.1.9)
- ☒ Abdomen still seated properly into dummy
- ☐ Abdomen was adjusted because it was not seated properly into dummy
- ☒ 23. Head Angle
- ☒ N/A, neither the pelvis nor the abdomen were adjusted.
- ☒ 23.1 Head still level (Go to 24)
- ☐ 23.2 Head level adjusted
- ☐ Head Level Achieved. (Check all that apply)
- ☐ Head leveled using the adjustable seat back
- ☐ Head leveled using the neck bracket.  
Head Angle \_\_\_\_\_ degrees
- ☐ Head Level NOT Achieved. (Check all that apply)
- ☐ Head level adjusted using the adjustable seat back
- ☐ Head level adjusted using the neck bracket.  
Head Angle \_\_\_\_\_ degrees

- ☒ 24. If the dummy torso contacts the steering wheel while performing step 20, reposition the steering wheel in the following order to eliminate contact. (S16.3.2.1.9)  
☒ N/A, No dummy torso contact with the steering wheel.
- ☐ 24.1 Adjust telescoping mechanism.  
☐ N/A No telescoping adjustment.  
☐ Adjustment performed (fill in appropriate change)  
Steering wheel moved \_\_\_\_\_ detent positions in the forward direction.  
Steering wheel moved \_\_\_\_\_ mm in the forward direction.
- ☐ 24.2 Adjust tilt mechanism.  
☐ N/A No tilt adjustment.  
☐ No adjustment performed.  
☐ Adjustment performed.  
Steering wheel moved \_\_\_\_\_ detent positions Upward/Downward.  
(circle one)  
Steering wheel moved \_\_\_\_\_ degrees Upward/Downward
- ☐ 24.3 Adjust Seat in the aft direction.  
☐ No Adjustment performed.  
☐ Seat moved aft \_\_\_\_\_ mm from original position.  
☐ Seat moved aft \_\_\_\_\_ detent positions from the original position.
- ☒ 25. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees  $\pm$  2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level or because the dummy will have need major repositioning, adjust the pelvis as closely as possible to the angle range, but keep the head level. (S16.3.2.1.11)  
☒ Pelvic angle set to 20.0 degrees  $\pm$  2.5 degrees.  
☐ Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.  
☐ Record the pelvic angle. \_\_\_\_\_ 19.6 \_\_\_\_\_ degrees
- ☒ 26. Check the dummy for contact with the interior after completing adjustments. (S16.3.2.1.12)  
☒ No contact.  
☐ Dummy in contact with interior.  
☐ Seat moved aft \_\_\_\_\_ mm from the previous position.  
☐ Seat moved aft \_\_\_\_\_ detent positions from the previous position.
- ☒ 27. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.2.1.12)  
☒ N/A, Seat already at foremost position.  
☐ Clearance unchanged. No adjustments required.  
☐ Additional clearance available  
☐ Seat moved Forward \_\_\_\_\_ mm from the previous position.  
☐ Seat moved Forward \_\_\_\_\_ detent positions from the previous position.
- ☒ 28. Driver's foot positioning, right foot. Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 29 otherwise, proceed to step 30. (S16.3.2.2.1)

- X 29. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 29.6 shall be completed in all cases. (S16.3.2.2.1(a))
- X 29.1 With the rear of the heel contacting the floor pan, move the foot forward until pedal contact occurs or the foot is at the full forward position.
- \_\_\_ 29.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position.
- \_\_\_ 29.3 Extend the leg, allowing the heel to lose contact with the floor until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)
- \_\_\_ 29.4 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)
- \_\_\_ 29.5 Align the centerline of the foot with the vertical-longitudinal plane passing through the center of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)
- X 29.6 Record foot position
- X Pedal Contact achieved. Contact occurred at step 29.1.
- X Heel contacts floor pan
- \_\_\_ Heel set \_\_\_\_\_ mm from floor pan.
- \_\_\_ Pedal Contact not achieved. Heel set \_\_\_\_\_ mm from the floor pan.





**FIGURE G1**

- \_\_\_30. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 30.5 shall be completed in all cases.
  - \_\_\_30.1 Extend the leg until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.1(b) & S16.3.2.2.3)
  - \_\_\_30.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.1(b) & S16.3.2.2.3)
    - \_\_\_N/A No pedal adjustment
  - \_\_\_30.3 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.2 & S16.3.2.2.3)
  - \_\_\_30.4 Align the centerline of the foot in the same horizontal plane as the centerline of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

30.5 Record foot position

     Pedal Contact achieved. Contact occurred at step \_\_\_\_\_.

     Heel set \_\_\_\_\_ mm from floor pan.

     Pedal Contact not achieved. Heel set \_\_\_\_\_ mm from the floor pan.

X 31. Driver's foot positioning, left foot.

X 31.1 Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 31.2, otherwise position the leg as perpendicular to the thigh as possible with the foot parallel to the floor pan. (S16.2.2.6)

X 31.2 Place the foot on the toe board with the heel resting on the floor pan as close to the intersection of the floor pan and the toe board as possible. Adjust the angle of the foot if necessary to contact the toe board. If the foot will not contact the toe board, set the foot perpendicular to the leg, and set the heel on the floor pan as far forward as possible. Avoid contact with the brake pedal, clutch pedal, wheel well projection, and footrest. To avoid this contact use the following three manipulations in the order listed, with each subsequent option incorporating the previous, until contact is avoided: rotate the foot about the lower leg (abduction/adduction), plantar flex the foot, rotate the leg outboard about the hip. Movement should be the minimum amount necessary. If it is not possible to avoid all foot contact, give priority to avoiding brake or clutch pedal contact. (S16.2.2.4 & S16.2.2.5 & S16.2.2.7)

X No contact

     Foot rotated about the leg (abduction/adduction)

     Foot rotated about the leg, and foot plantar flexed

     Foot rotated about the leg, foot plantar flexed, and the leg rotated about the hip.

X 31.3 Record foot position.

     Heel does not contact floor pan.

     Heel on floor pan and foot on toe board.

X Heel on floor pan and foot not on toe board.

X 32. Driver arm/hand positioning.

X 32.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

X 32.2 Place the palms of the dummy in contact with the outer part of the steering wheel rim at its horizontal centerline with the thumbs over the steering wheel rim. (S16.3.2.3.2)

X 32.3 If it is not possible to position the thumbs inside the steering wheel rim at its horizontal centerline, then position them above and as close to the horizontal centerline of the steering wheel rim as possible. (S16.3.2.3.3)

X 32.4 Lightly tape the hands to the steering wheel rim so that if the hand of the test dummy is pushed upward by a force of not less than 9 N (2 lb) and not more than 22 N (5 lb), the tape releases the hand from the steering wheel rim. S16.3.2.3.4

X 33. Adjustable head restraints

     N/A, there is no head restraint adjustment

- ☐ 33.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 34.
- ☐ 33.2 Adjust each head restraint vertically so that the mid-horizontal plane determined in Data Sheet 14.1 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)
- ☒ 33.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)  
☐ N/A midpoint position attained in previous step  
☒ Headrest set at nearest detent below the head CG
- ☐ 33.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)
- ☐ 34. Driver and passenger manual belt adjustment (for tests conducted with a belted dummy). (S16.3.5) UNBELTED TEST
- ☐ 34.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female. (S16.3.5.1) **This information will be supplied by the COTR.**  
Manufacturer's specified position \_\_\_\_\_  
Actual Position \_\_\_\_\_
- ☐ 34.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)
- ☐ 34.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)
- ☐ 34.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

REMARKS:

I certify that I have read and performed each instruction.

Signature:  Date: 5/5/08

## APPENDIX G

### DUMMY POSITIONING PROCEDURES FOR 5<sup>th</sup>% PASSENGER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Joe Fleck

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

(Check this item ONLY if it applies to this vehicle.)

   The passenger seat adjustments are controlled by the adjustments made to the driver's seat. Therefore, positioning of the passenger dummy is made simultaneously with the driver dummy. Adjustments made to the seat to position the driver will over ride any adjustments that would normally be made to position the passenger. (S16.2.10.3)

- X 1. Place the SCRP in the full rearward, mid-height position, and mid-seat cushion angle, determined during the completion of Data Sheet 14.1. (S16.3.3.1.1)
- X 2. Fully recline the seat back. (S16.3.3.1.2)  
   N/A seat back not adjustable.
- X 3. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.3.1.2)
- X 4. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion marking that was determined in Data Sheet 14.1. (S16.3.3.1.3 and S16.3.3.1.4)
- X 5. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.3.1.5)
- X 6. Set the angle between the legs and the thighs to 120 degrees. (S16.3.3.1.6)
- X 7. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches). Center the knee separation with respect to the longitudinal seat cushion marking that was determined Data Sheet 14.1. (S16.3.3.1.6)  
 Record Knee Separation 165
- X 8. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.3.1.6)  
   Pelvis contacted seat back.  
X Calves contacted seat cushion.
- X 9. Gently rock the upper torso  $\pm$  5 degrees (approximately 51 mm (2 inches)) side-to-side three times. (S16.3.3.1.7)

- X 10. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.3.1.8)
- X 11. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14.1 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.3.1.8)
- X Foremost, mid-height position and the seat cushion mid-angle reached
- \_\_\_ Dummy contact. Clearance set at maximum of 5mm  
Measured Clearance \_\_\_\_\_
- \_\_\_ Dummy Contact. Seat set at nearest detent position.  
Seat position \_\_\_ detent positions rearward of foremost  
(foremost is position zero)
- X 12. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level  $\pm 0.5$  degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, adjust the head as closely as possible to the  $\pm 0.5$  degree range. (S16.3.3.1.9 and S16.3.3.1.10)  
(Check All That Apply)
- \_\_\_ Seat back not adjustable
- \_\_\_ Seat back not independent of driver side seat back
- X Head Level Achieved. (Check all that apply)
- X Head leveled using the adjustable seat back
- \_\_\_ Head leveled using the neck bracket.  
Head Angle 0.2 degrees
- \_\_\_ Head Level NOT Achieved. (Check all that apply)
- \_\_\_ Head adjusted using the adjustable seat back
- \_\_\_ Head adjusted using the neck bracket.  
Head Angle \_\_\_\_\_ degrees
- X 13. Verify the pelvis is not interfering with the seat bight. (S16.3.3.1.9)
- X No interference
- \_\_\_ Pelvis moved forward the minimum amount so that it is not caught in the seat bight.
- X 14. Verify the dummy abdomen is properly installed. (S16.3.3.1.9)
- X Abdomen still seated properly into dummy
- \_\_\_ Abdomen was adjusted because it was not seated properly into dummy
- X 15. Head Angle
- X N/A, neither the pelvis nor the abdomen were adjusted.
- X 15.1 Head still level (Go to 16)

15.2 Head level adjusted

     Head Level Achieved. (Check all that apply)

     Head leveled using the adjustable seat back

     Head leveled using the neck bracket.

Head Angle                  degrees

     Head Level NOT Achieved. (Check all that apply)

     Head adjusted using the adjustable seat back

     Head adjusted using the neck bracket.

Head Angle                  degrees

X 16. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees  $\pm$  2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level or because the dummy will have need major repositioning, adjust the pelvis as closely as possible to the angle range, but keep the head level.

X Pelvic angle set to 20.0 degrees  $\pm$  2.5 degrees.

     Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.

X Record the pelvic angle.     19.2     degrees

X 17. Check the dummy for contact with the interior after completing adjustments.

X No contact.

     Dummy in contact with interior.

     Seat moved aft      mm from the previous position.

     Seat moved aft      detent positions from the previous position.

X 18. Verify the transverse instrument platform of the dummy head is level  $\pm$  0.5 degrees. Use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9, S16.3.3.1.10, and S16.3.3.1.11)

X Head Level Achieved

Head Angle     0.3     degrees

     Head Level NOT Achieved.

Head Angle                  degrees

X 19. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.3.1.12)

     N/A Bench Seat

X N/A Seat already at full forward position.

     Clearance unchanged. No adjustments required.

     Additional clearance available

     Seat moved Forward      mm from the previous position.

     Seat moved Forward      detent positions from the previous position.

     Seat moved Forward, Full Forward position reached.

X 20. Passenger foot positioning. (Indicate final position achieved) (S16.3.3.2)

X 20.1 Place feet flat on the toe board; OR (S16.3.3.2.1)

     20.2 If the feet cannot be placed flat on the toe board, set the feet perpendicular to the lower leg, and rest the heel as far forward on the floor pan as possible; OR (S16.3.3.2.2)

     20.3 If the heels do not touch the floor pan, set the legs as perpendicular to the thighs as possible and set the feet parallel to the floor pan. (S16.3.3.2.2)

X 21. Passenger arm/hand positioning. (S16.3.3.3)

X 21.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.3.3.1)

X 21.2 Place the palms of the dummy in contact with the outer part of the thighs (S16.3.3.3.2)

X 21.3 Place the little fingers in contact with the seat cushion. (S16.3.3.3.3)

X 22. Adjustable head restraints (S16.3.4)

\_\_\_ N/A, there is no head restraint adjustment

\_\_\_ 22.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 23.

\_\_\_ 22.2 Adjust each head restraint vertically so that the horizontal plane determined in Data Sheet 14.1 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

X 22.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)

\_\_\_ N/A midpoint position attained in previous step

X Headrest set at nearest detent below the head CG

\_\_\_ 22.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

X 23. Manual belt adjustment (for tests conducted with a belted dummy) S16.3.5

X N/A, Unbelted test

\_\_\_ 23.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female. **This information will be supplied by the COTR.** (S16.3.5.1)

Manufacturer's specified position \_\_\_\_\_

Actual Position \_\_\_\_\_

\_\_\_ 23.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

\_\_\_ 23.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

\_\_\_ 23.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

REMARKS:

I certify that I have read and performed each instruction.

Signature: Joe Fleck

Date: 5/5/08

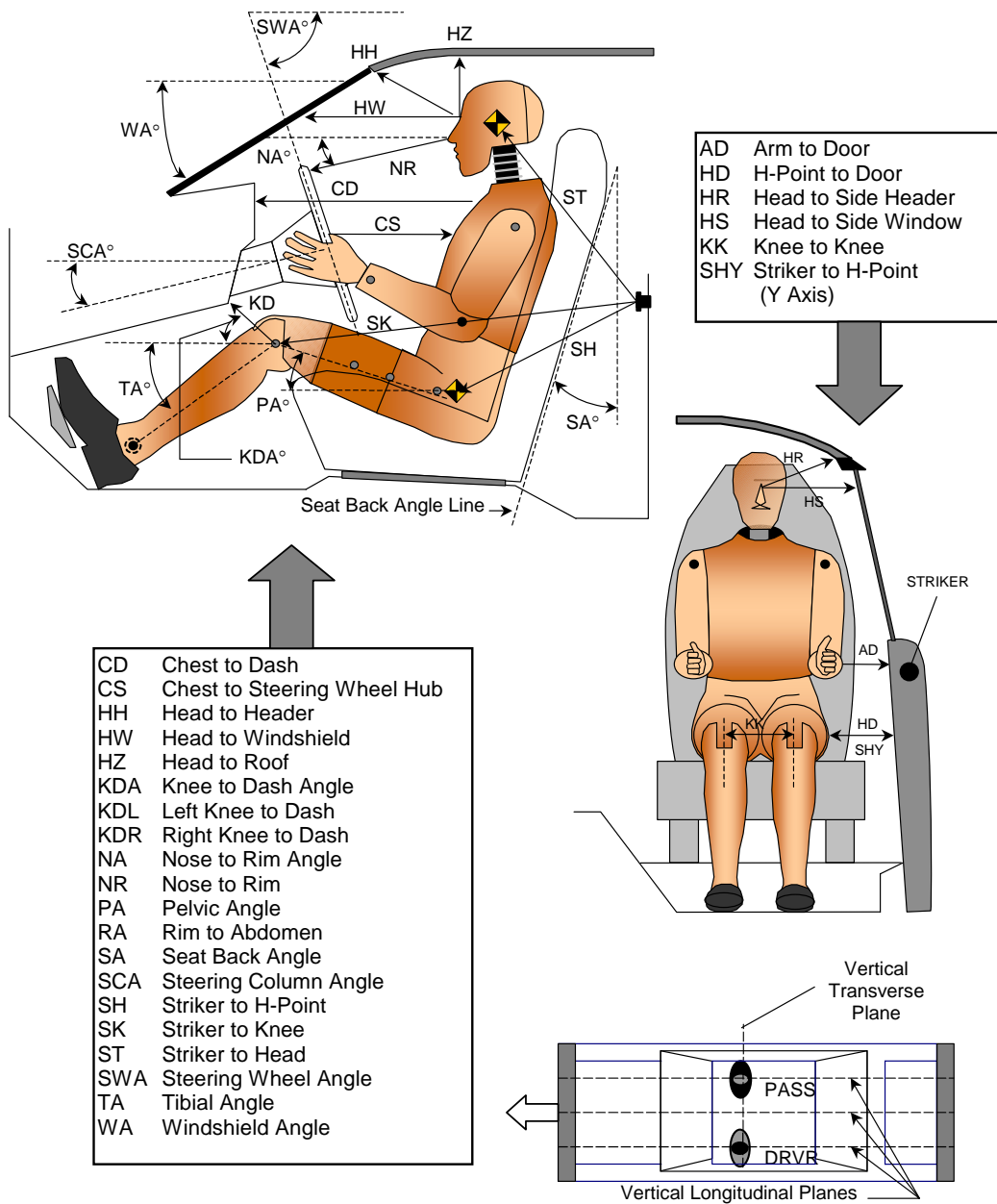
## DATA SHEET 37

### DUMMY MEASUREMENTS

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Joe Fleck

NHTSA No.: C80511  
 Test Date: 5/5/08

### DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS





**DATA SHEET 37**  
**DUMMY MEASUREMENTS**

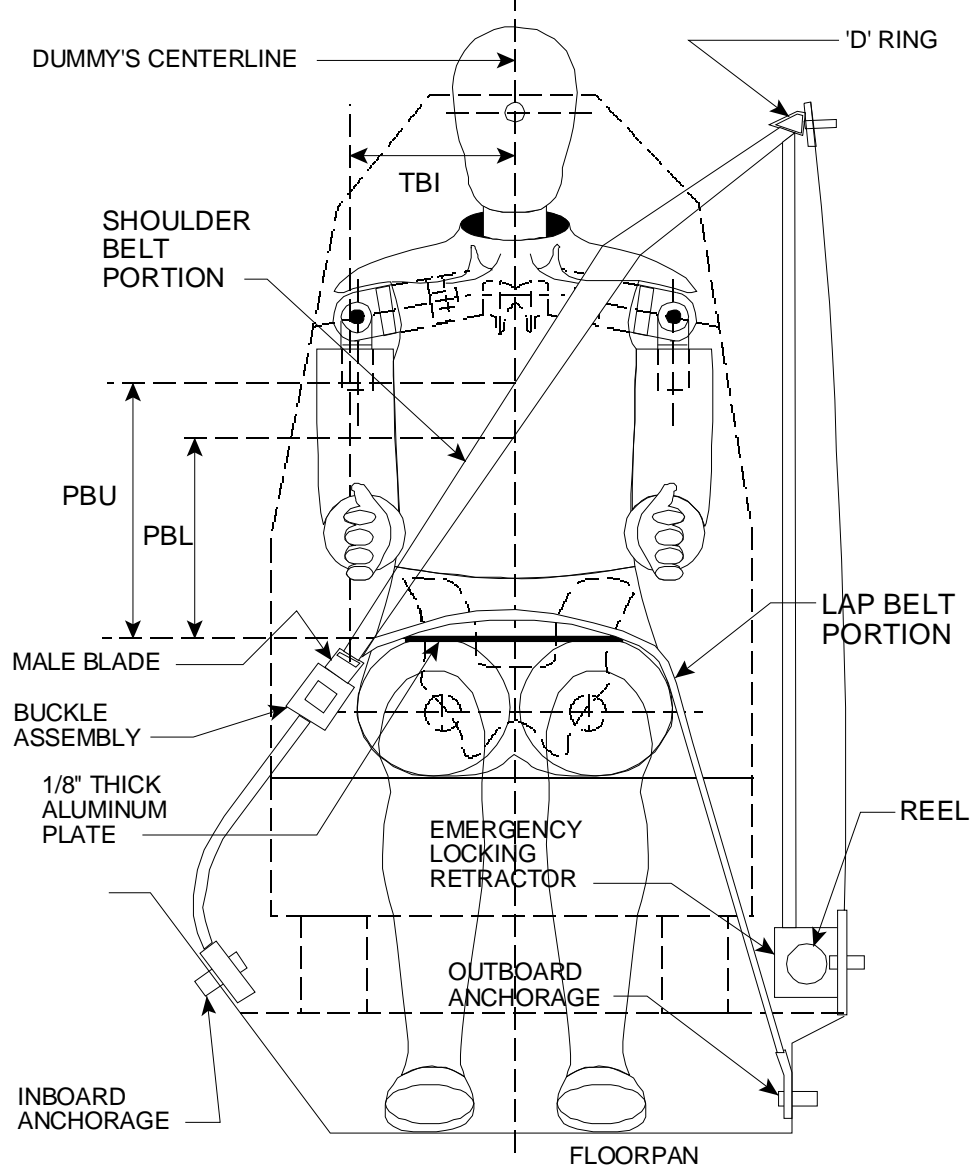
Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance  
Test Technician: Joe Fleck

NHTSA No.: C80511  
Test Date: 5/5/08

**TEST DUMMY POSITION MEASUREMENTS**

Code	Measurement Description	Driver SN 124		Passenger SN 125	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		35.1		
SWA	Steering Wheel Angle		69.9		
SCA	Steering Column Angle		20.1		
SA	Seat Back Angle		4.5		7.2
HZ	Head to Roof (Z)	282		275	
HH	Head to Header	245	30.7	334	37.4
HW	Head to Windshield	594	0.0	703	0.0
HR	Head to Side Header (Y)	254		237	
NR	Nose to Rim	257	5.5		
CD	Chest to Dash	464		506	
CS	Chest to Steering Hub	217	1.7		
RA	Rim to Abdomen	125	0.0		
KDL	Left Knee to Dash	64	41.0	170	
KDR	Right Knee to Dash	59		168	35.2
PA	Pelvic Angle		19.6		19.2
TA	Tibia Angle		49.7		46.9
KK	Knee to Knee (Y)	254		225	
SK	Striker to Knee	849	98.8	697	100.9
ST	Striker to Head	529	44.5	446	36.0
SH	Striker to H-Point	569	111.4	395	118.9
SHY	Striker to H-Point (Y)	240		255	
HS	Head to Side Window	313		312	
HD	H-Point to Door (Y)	136		148	
AD	Arm to Door (Y)	141		135	
AA	Ankle to Ankle	233		175	

## SEAT BELT POSITIONING DATA



### FRONT VIEW OF DUMMY

#### SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	N/A	N/A
PBL - Top surface of reference to belt lower edge	mm	N/A	N/A

## DATA SHEET 38

### CRASH TEST

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Joe Fleck

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

- |          |   |
|----------|---|
| <u>X</u> | 1. Vehicle underbody painted  |
| <u>X</u> | 2. The speed measuring devices are in place and functioning.  |
| <u>X</u> | 3. The speed measuring devices are <u>1.0</u> m from the barrier (spec. 1.5m) and <u>30</u> cm from the barrier (spec. is 30 cm)  |
| <u>X</u> | 4. Convertible top is in the closed position.   |
| <u>X</u> | <u>X</u> N/A, not a convertible   |
| <u>X</u> | 5. Instrumentation and wires are placed so the motion of the dummies during impact is not affected.   |
| <u>X</u> | 6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information. |

<u>200 kpa</u> front left tire	<u>200 kpa</u> specified on tire placard or in owner information
<u>200 kpa</u> front right tire	<u>200 kpa</u> specified on tire placard or in owner information
<u>250 kpa</u> rear left tire	<u>250 kpa</u> specified on tire placard or in owner information
<u>250 kpa</u> rear right tire	<u>250 kpa</u> specified on tire placard or in owner information

- |          |   |
|----------|---|
| <u>X</u> | 7. Time zero contacts on barrier in place.  |
| <u>X</u> | 8. Pre test zero and shunt calibration adjustments performed and recorded                     |
| <u>X</u> | 9. Dummy temperature meets requirements of section 12.2 of the test procedure.                |
| <u>X</u> | 10. Vehicle hood closed and latched   |
| <u>X</u> | 11. Transmission placed in neutral  |
| <u>X</u> | 12. Parking brake off   |
| <u>X</u> | 13. Ignition in the ON position   |
| <u>X</u> | 14. Doors closed and latched but not locked   |
| <u>X</u> | 15. Posttest zero and shunt calibration checks performed and recorded                         |
| <u>X</u> | 16. Actual test speed <u>39.9 kmph</u>  |
| <u>X</u> | 17. Vehicle rebound from the barrier <u>201</u> cm  |
| <u>X</u> | 18. Describe whether the doors open after the test and what method is used to open the doors. |
| <u>X</u> | Left Front Door: Door remained closed and latched; Door opened without tools                  |
| <u>X</u> | Right Front Door: Door remained closed and latched; Door opened without tools                 |
| <u>X</u> | Left Rear Door: Door remained closed and latched; Door opened without tools                   |
| <u>X</u> | Right Rear Door: Door remained closed and latched; Door opened without tools                  |

- ☒ 19. Describe the contact points of the dummy with the interior of the vehicle.
- ☒ Driver Dummy: Head to Air Bag, Visor, and Seat Back; Chest to Air Bag; Knees to Knee Bolster
  - ☒ Passenger Dummy: Head to Air Bag, Visor, and Driver Arm; Chest to Air Bag; Knees to Glove Box

REMARKS:

I certify that I have read and performed each instruction.

Signature: Joe Fleck

Date: 5/5/08

# DATA SHEET NO. 40

## ACCIDENT INVESTIGATION MEASUREMENTS

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jamie Aide

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>  </u> X 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>  </u> X 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

Vehicle Year/Make/Model/Body Style:	2008 Smart fortwo Passenger Car
VIN:	WMEEJ31X58K107031
Wheelbase:	1869 mm
Build Date:	01/08
Vehicle Size Category:	The vehicle is less than category 1
Test Weight:	1007.4 kg
Front Overhang:	390 mm
Overall Width:	1513 mm
Overall Length Center:	2690 mm

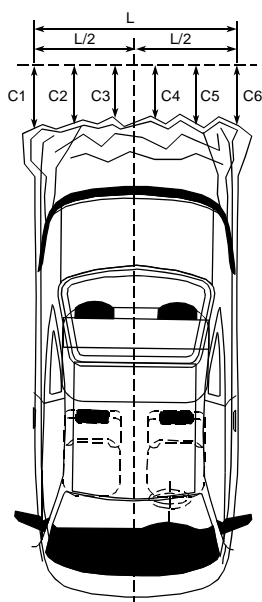
Accelerometer Data	
Location:	As per measurements on Data Sheet 33
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	39.9 kmph
Time of Separation:	91.9 ms
Velocity Change:	44.4 kmph

## CRUSH PROFILE

Collision Deformation Classification: 12FDEW6  
 Midpoint of Damage: Vehicle Longitudinal Centerline  
 Damage Region Length (mm): 1069  
 Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	2669	2539	130
C2	Crush zone 2 at left side	mm	2677	2518	159
C3	Crush zone 3 at left side	mm	2684	2516	168
C4	Crush zone 4 at right side	mm	2685	2524	161
C5	Crush zone 5 at right side	mm	2680	2531	149
C6	Crush zone 6 at right side	mm	2671	2539	132



REMARKS:

I certify that I have read and performed each instruction.

Signature: *Jamie Cusick*

Date: 5/5/08

**DATA SHEET 41**  
**WINDSHIELD MOUNTING (FMVSS 212)**

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jamie Aide

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

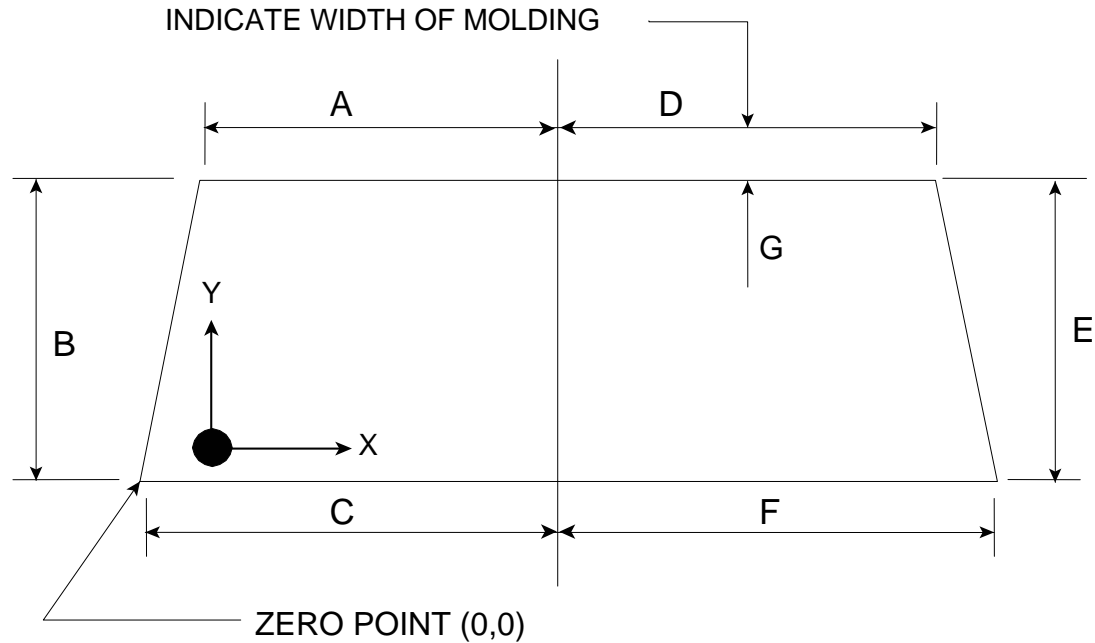
- ☒ 1. Pre-Crash
- ☒ 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.
- Retained with glue
- ☒ 1.2 Mark the longitudinal centerline of the windshield
- ☒ 1.3 Measure pre-crash A, B, and C for the left side and record in the chart below.
- ☒ 1.4 Measure pre-crash C, D, and E for the right side and record in the chart below.
- ☒ 1.5 Measure from the edge of the retainer or molding to the edge of the windshield.
- ☒ Dimension G (mm): 0 mm (No Molding)
- ☐ 2. Post Crash
- ☒ 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?
- ☒ No – Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.
- ☐ Yes, go to 2.2
- ☐ 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.
- ☐ 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.
- ☐ 2.4 Calculate and record the percent retention for the right and left side of the windshield.
- ☐ 2.5 Is total right side percent retention less than 75%?
- ☐ Yes, Fail
- ☐ No, Pass
- ☐ 2.6 Is total left side percent retention less than 75%?
- ☐ Yes, Fail
- ☐ No, Pass

## WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	508	508	100%
	B	790	790	100%
	C	630	630	100%
	Total	1928	1928	100%
Right Side	D	508	508	100%
	E	790	790	100%
	F	630	630	100%
	Total	1928	1928	100%

Indicate area of mounting failure. NONE

### FRONT VIEW OF WINDSHIELD



REMARKS:

I certify that I have read and performed each instruction.

Signature: *James C. [Signature]*

Date: 5/5/08



**DATA SHEET 42**  
**WINDSHIELD ZONE INTRUSION (FMVSS 219)**

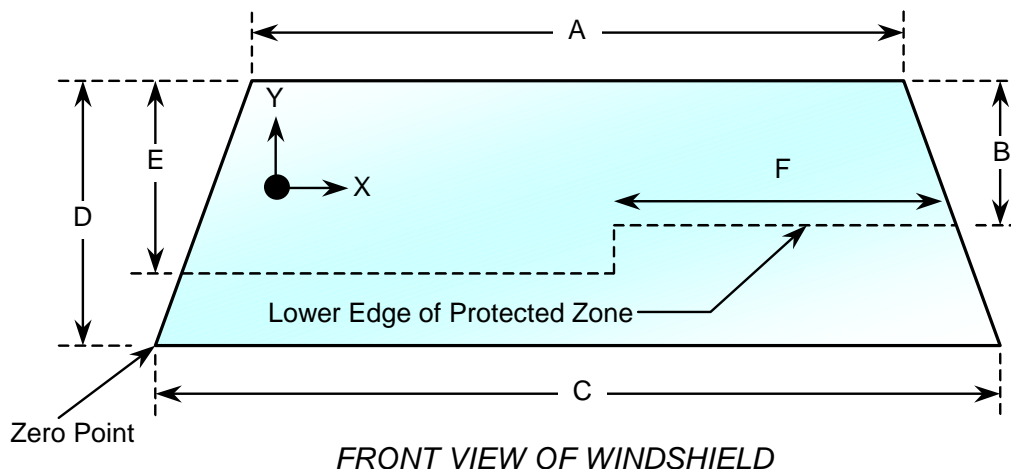
Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance  
 Test Technician: Jamie Aide

NHTSA No.: C80511  
 Test Date: 5/5/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u>  </u> 0 to 48 kmph	<u>  </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	
PASSENGER DUMMY:	<u>X</u> 5 <sup>th</sup> female	<u>  </u> 50 <sup>th</sup> male	

- X 1. Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))
- X 2. Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))
- X 3. From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))
- X 4. Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3
- X 5. After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.



## WINDSHIELD DIMENSIONS

Item	Units	Value
A	mm	1015
B	mm	452
C	mm	1260
D	mm	790
E	mm	435
F	mm	360

### AREA OF PROTECTED ZONE FAILURES:

- B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

X	Y
NONE	

- C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
NONE	

### REMARKS:

I certify that I have read and performed each instruction.

Signature: *Janice C. Scott*

Date: 5/5/08

**DATA SHEET 43**  
**FUEL SYSTEM INTEGRITY (FMVSS 301)**

Test Vehicle: 2008 Smart fortwo  
Test Program: FMVSS 208 Compliance  
Test Technician: Joe Fleck

NHTSA No.: C80511  
Test Date: 5/5/08

TYPE OF IMPACT:	25 mph Unbelted Flat Frontal
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**Stoddard Solvent Spillage Measurements**

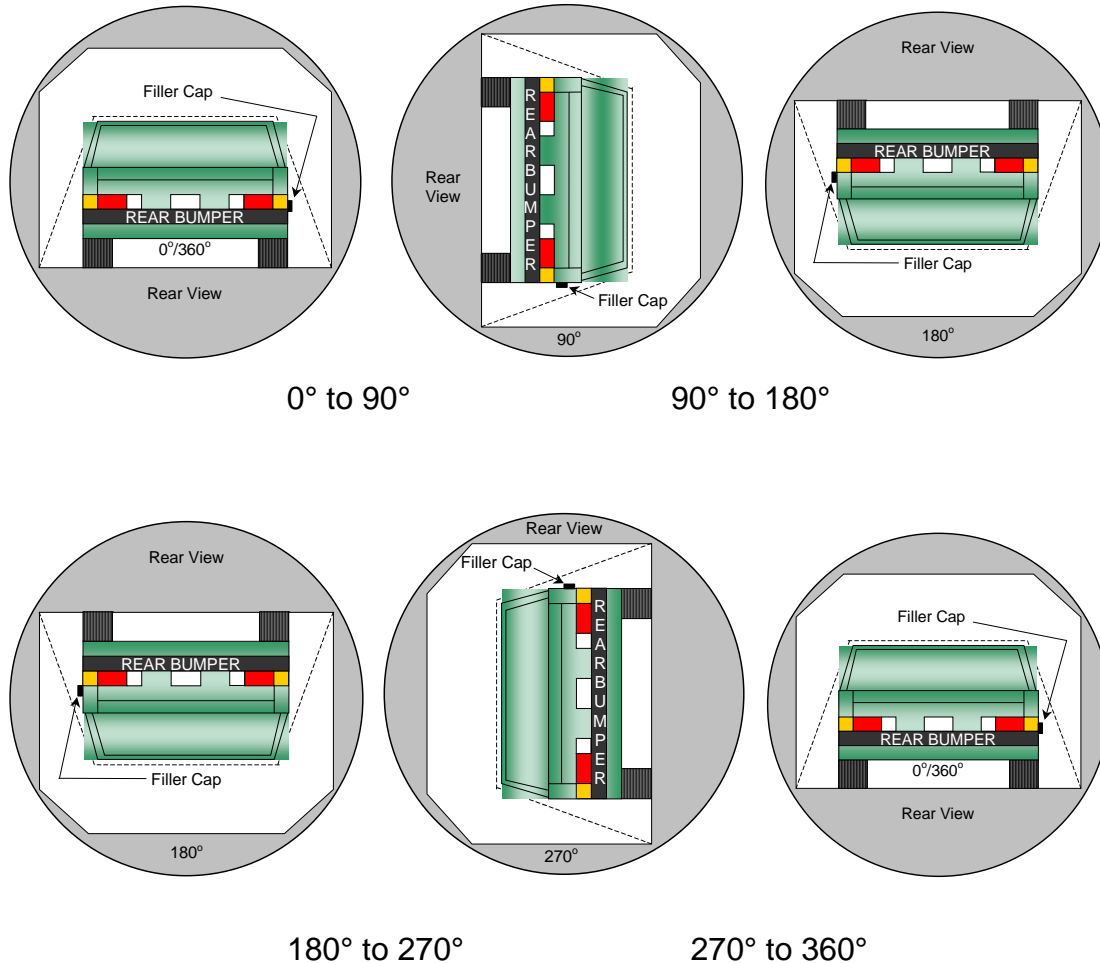
- A. From impact until vehicle motion ceases: 0.0 grams  
(Maximum Allowable = 28 grams)
- B. For the 5 minute period after motion ceases: 0.0 grams  
(Maximum Allowable = 142 grams)
- C. For the following 25 minutes: 0.0 grams  
(Maximum Allowable = 28 grams/minute)
- D. Spillage: NONE

REMARKS: NO SPILLAGE

**DATA SHEET NO. 43**  
**FMVSS 301 STATIC ROLLOVER DATA**

Test Vehicle: 2008 Smart fortwo  
 Test Program: FMVSS 208 Compliance

NHTSA No.: C80511  
 Test Date: 5/5/08



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: **None**

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (grams)
0° to 90°	121	300	0.0
90° to 180°	114	300	0.0
180° to 270°	114	300	0.0
270° to 360°	117	300	0.0

**APPENDIX A**  
**CRASH TEST DATA**

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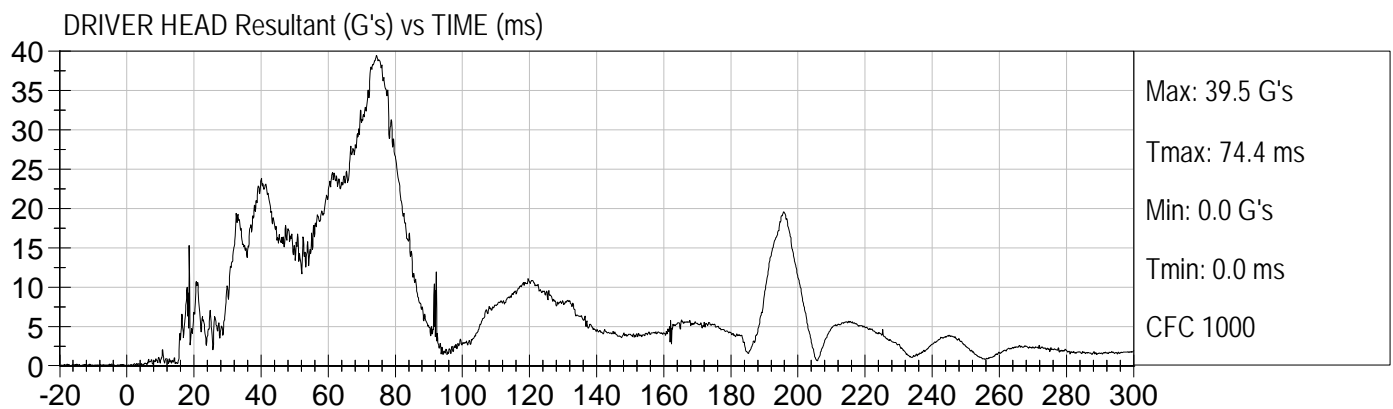
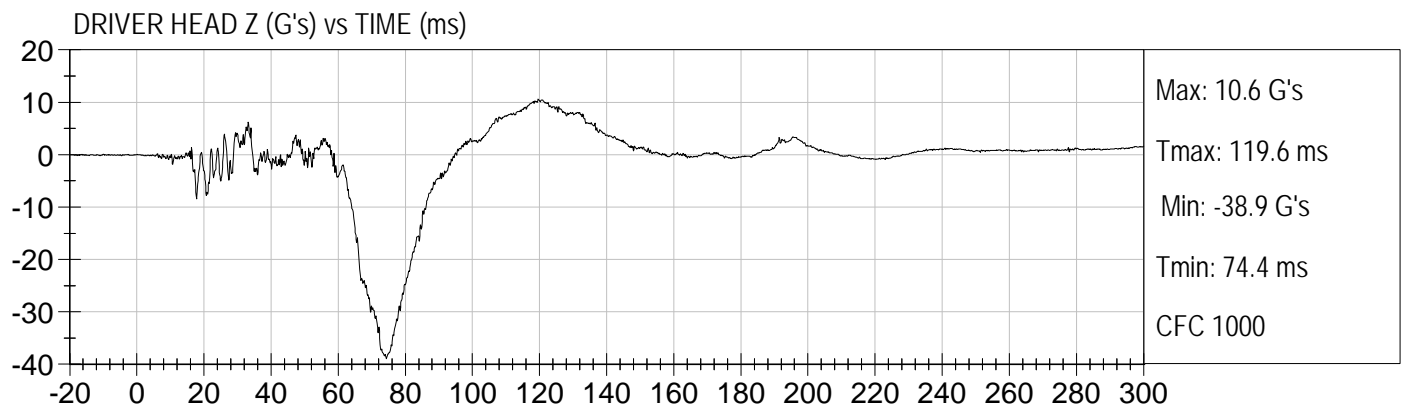
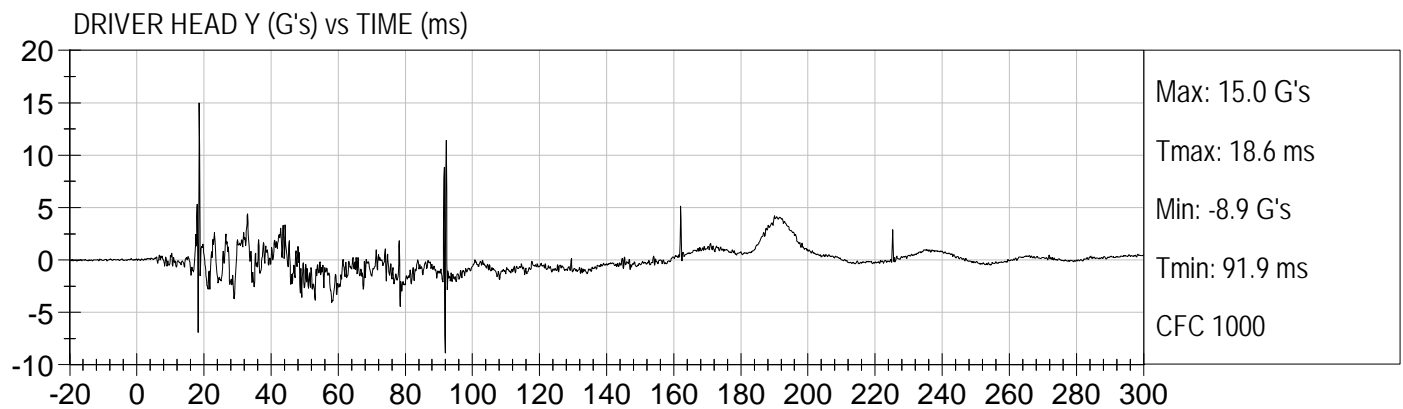
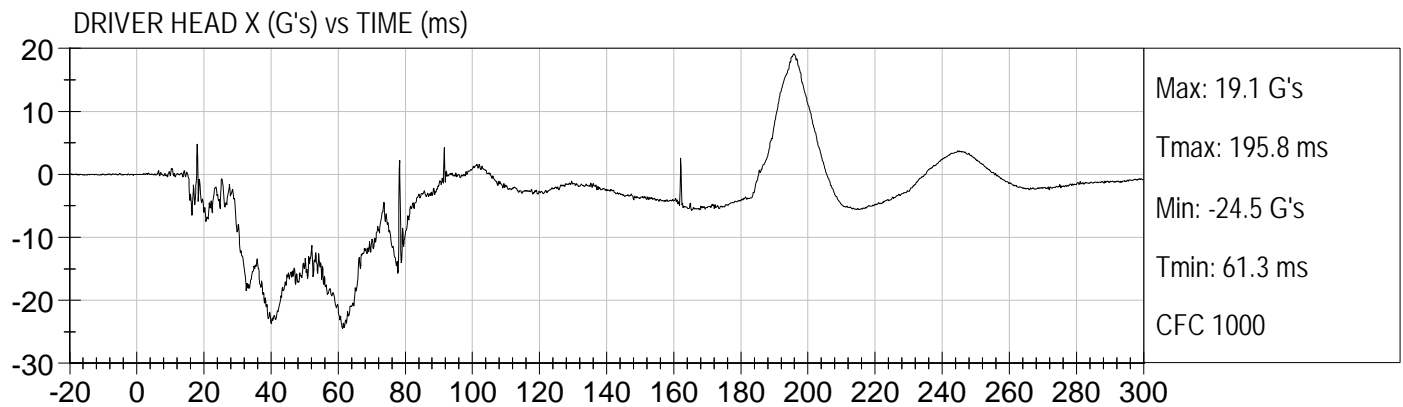
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25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

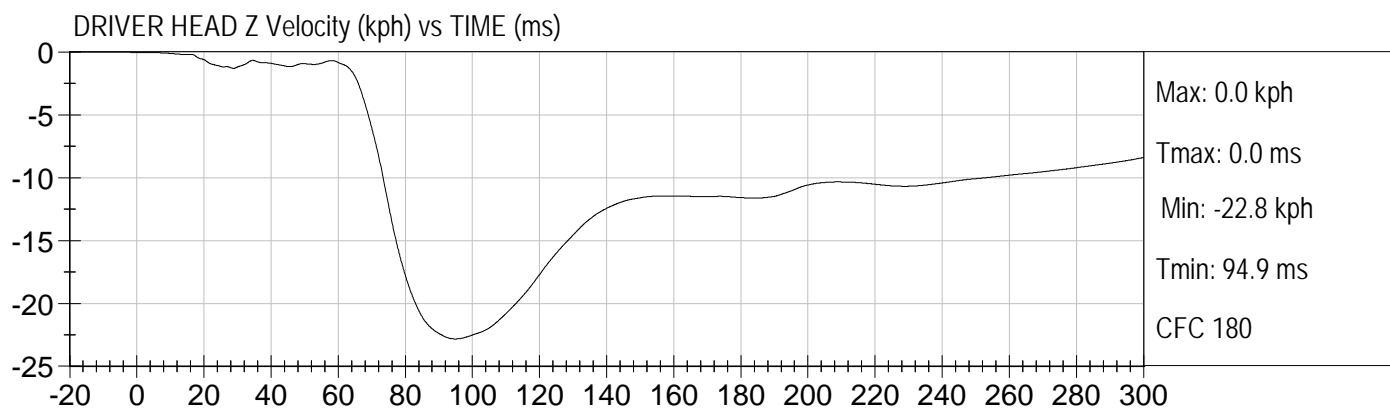
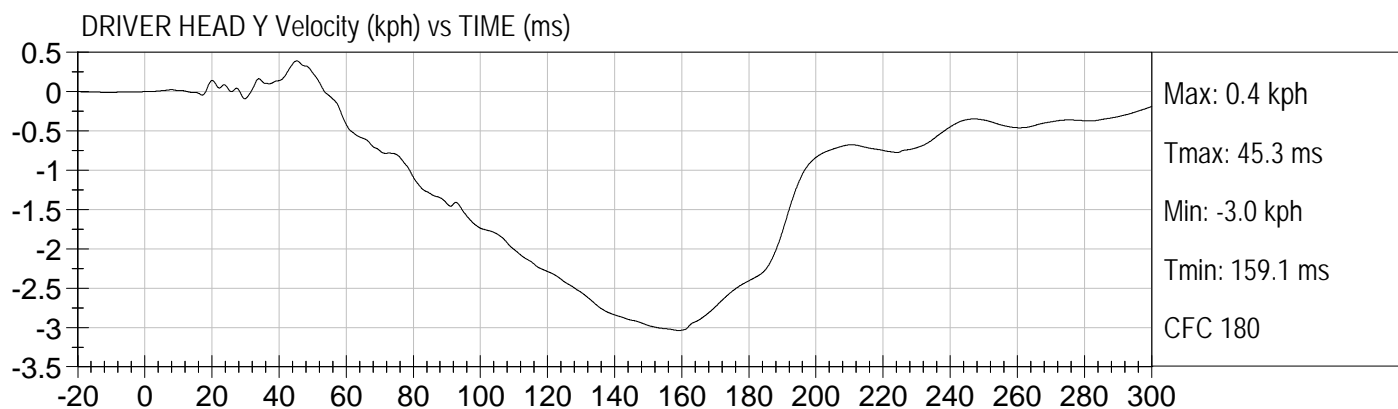
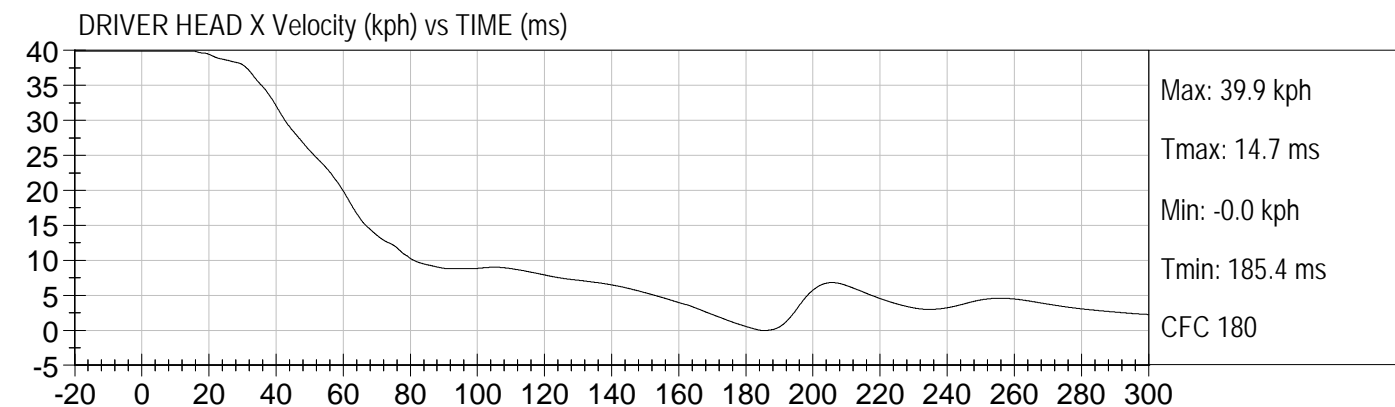
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2008 Smart fortwo (C80511)

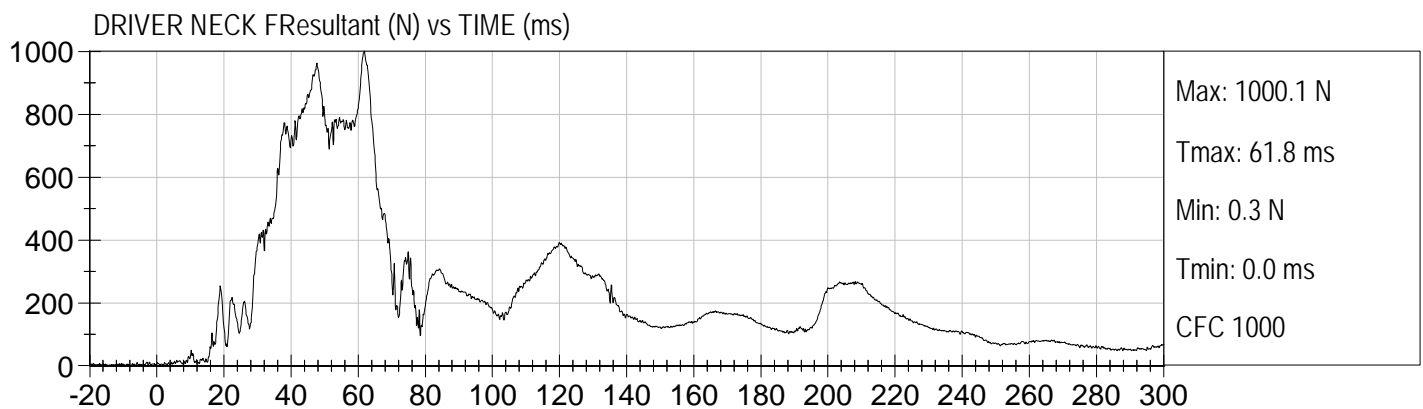
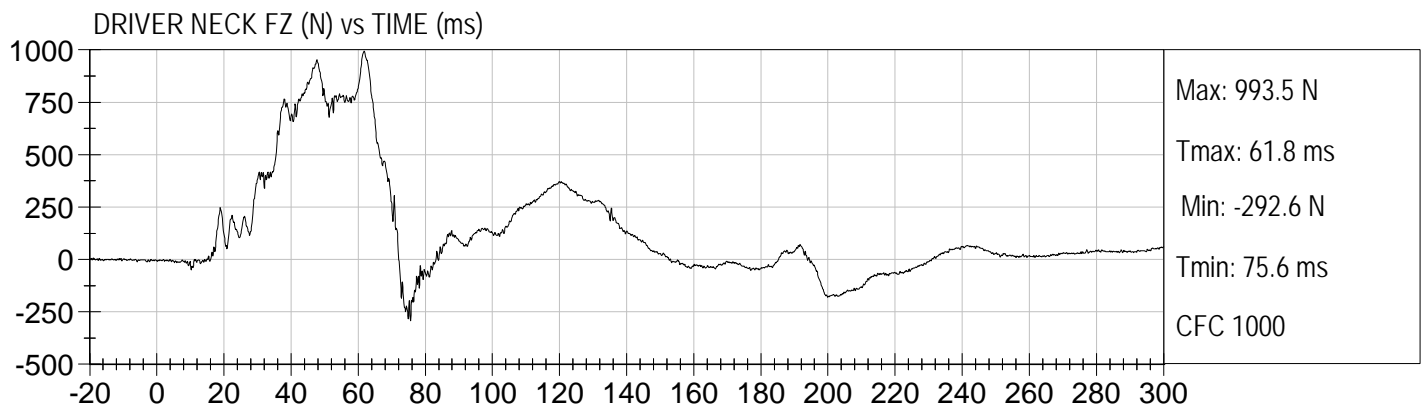
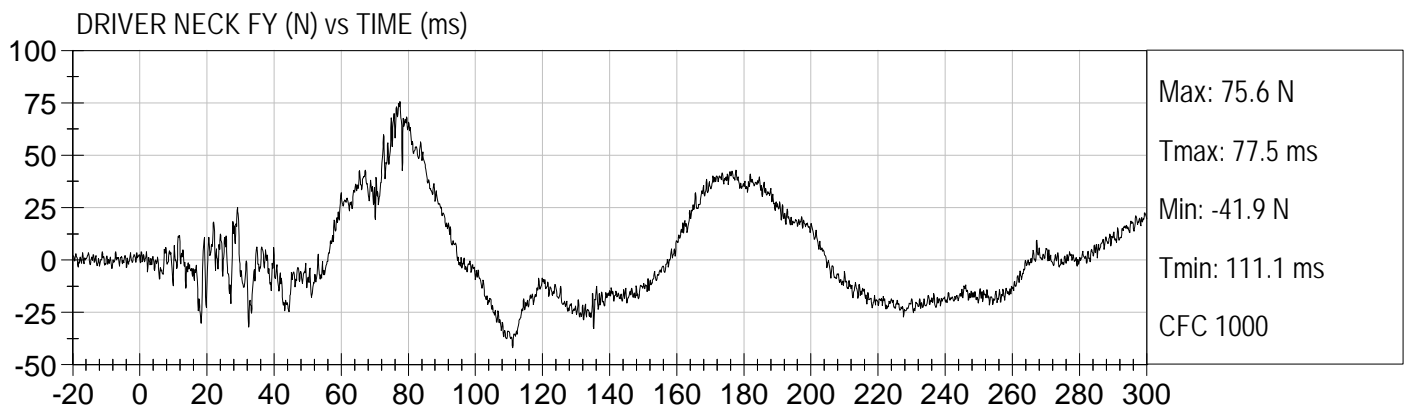
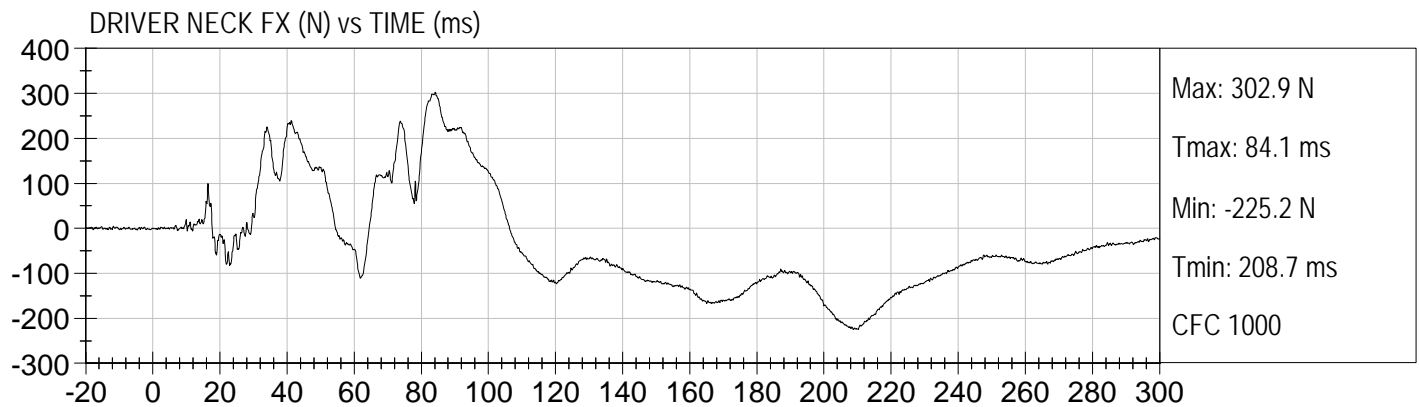
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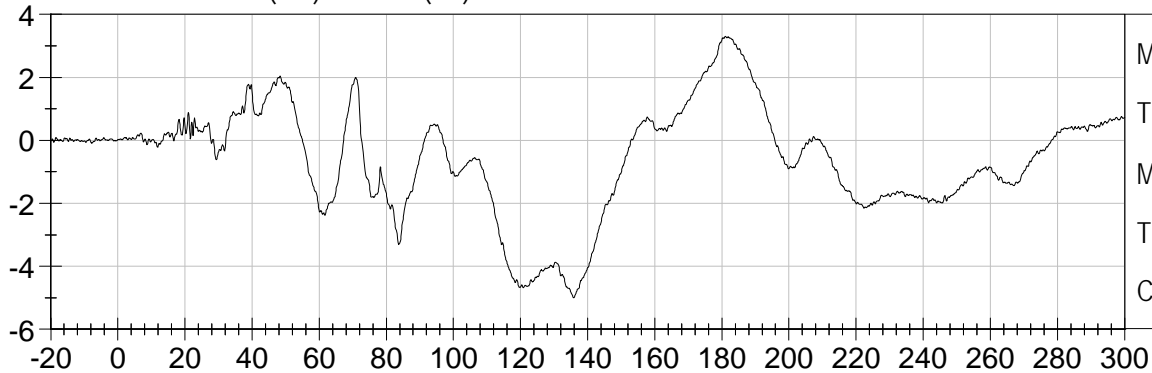




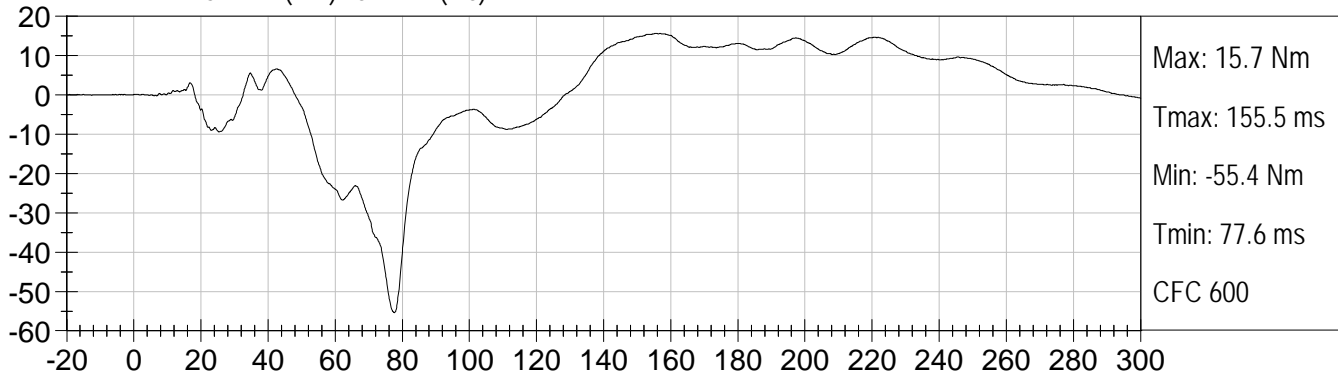
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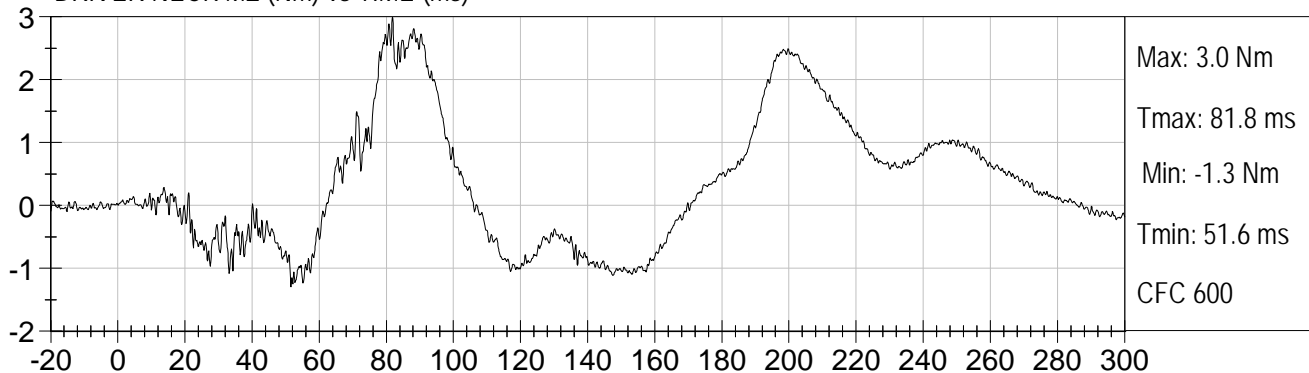
DRIVER NECK MX (Nm) vs TIME (ms)



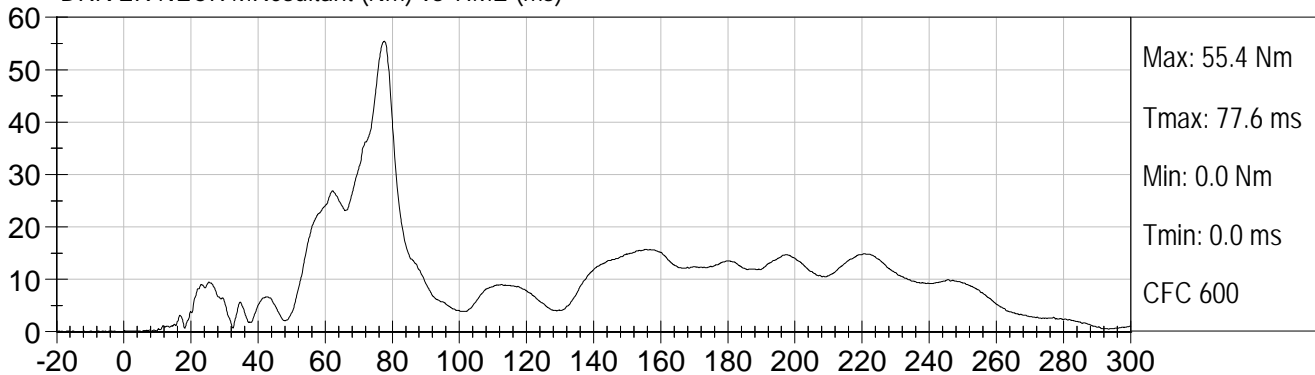
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DRIVER NECK MZ (Nm) vs TIME (ms)



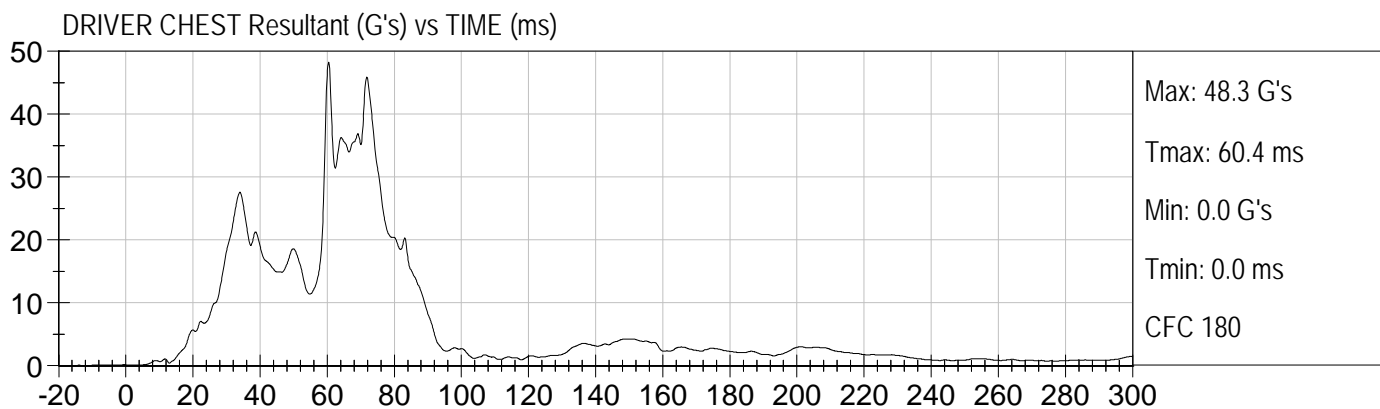
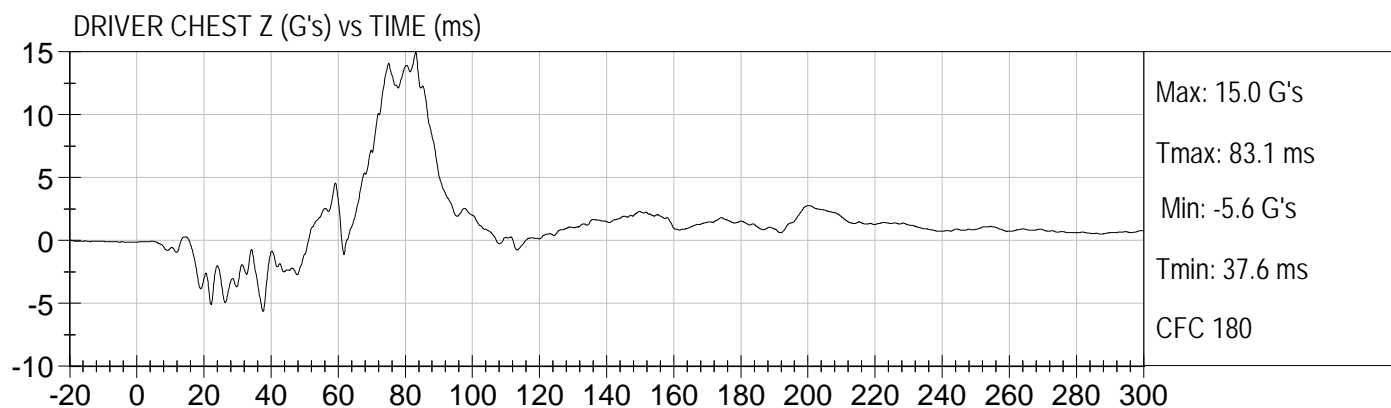
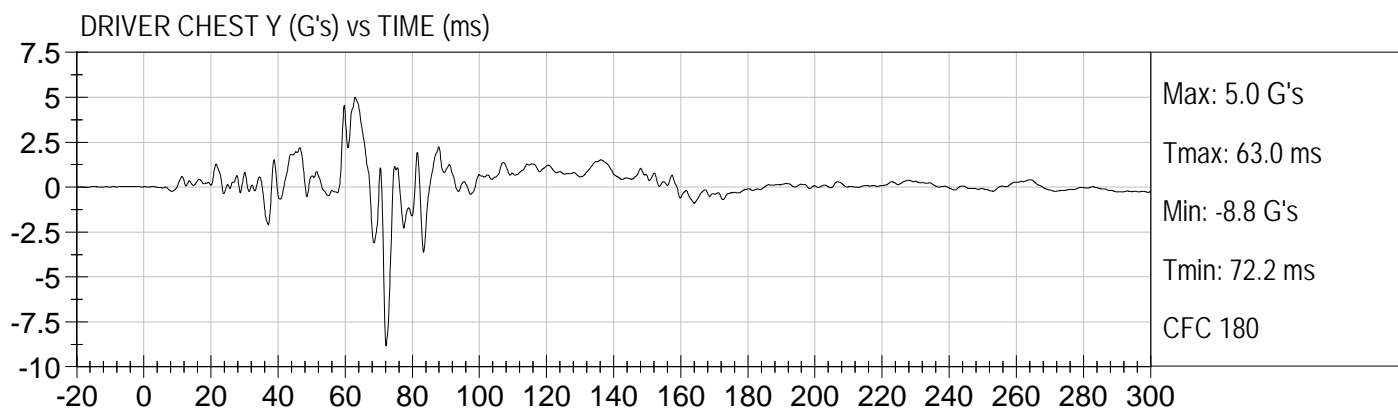
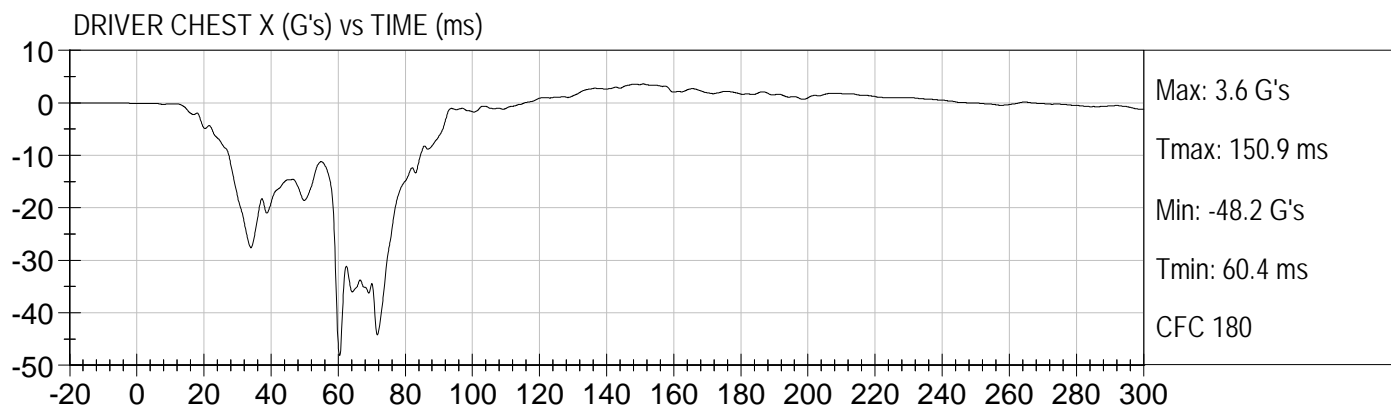
DRIVER NECK MResultant (Nm) vs TIME (ms)





25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

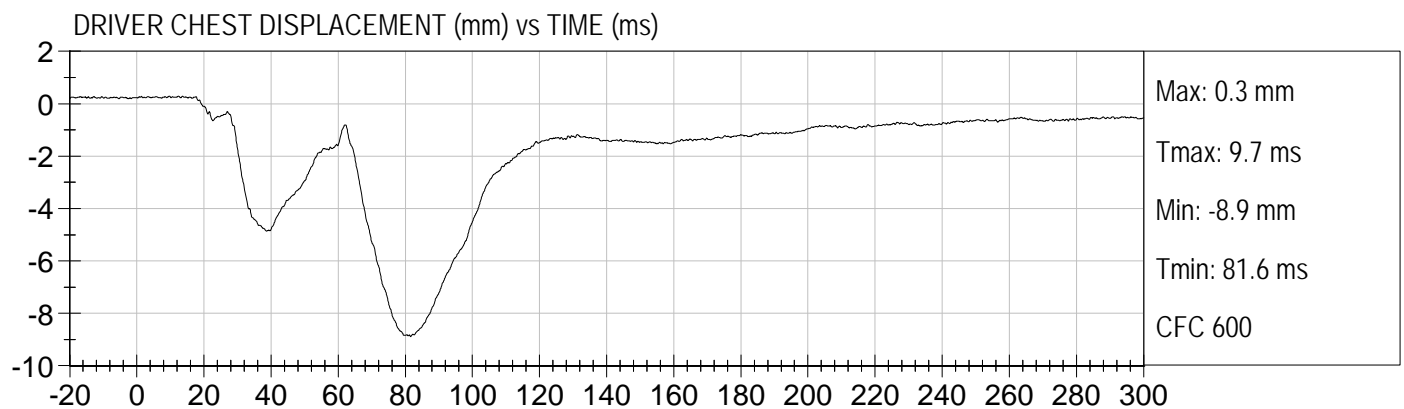
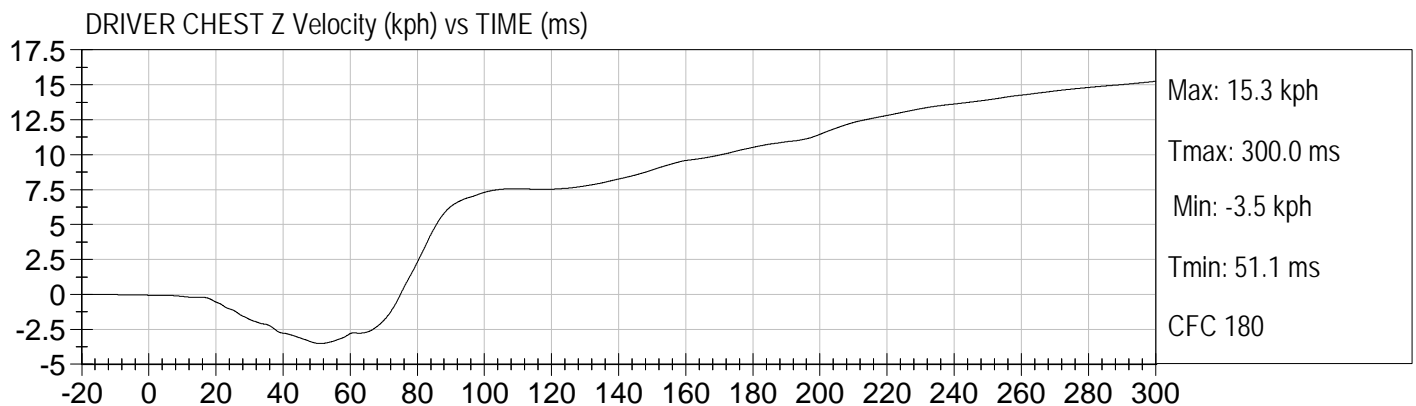
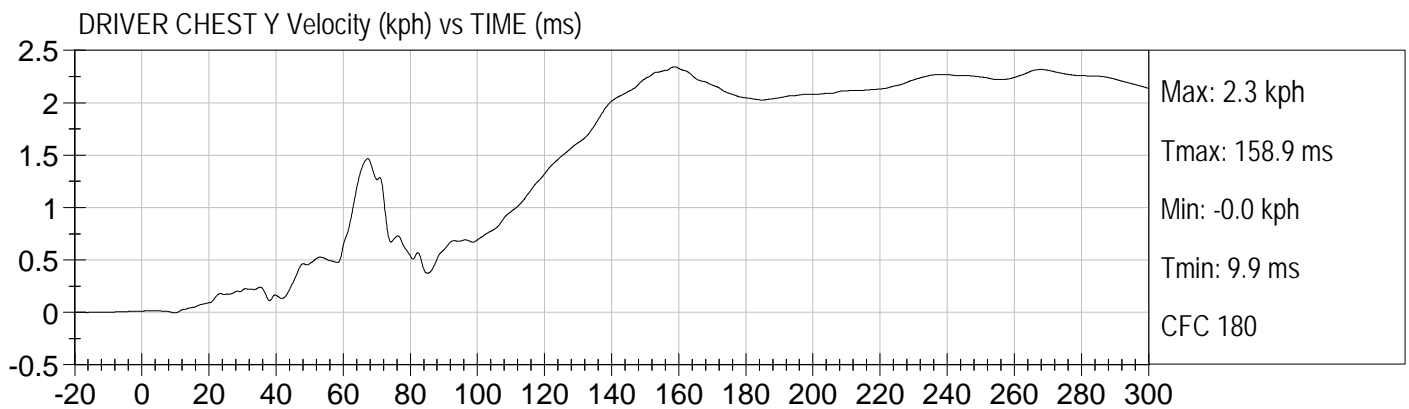
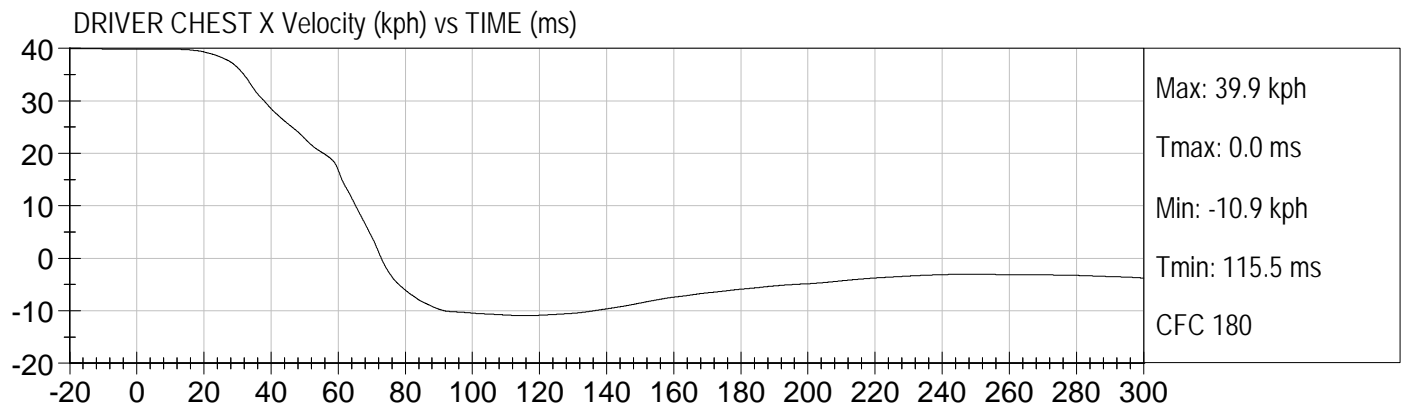
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2008 Smart fortwo (C80511)

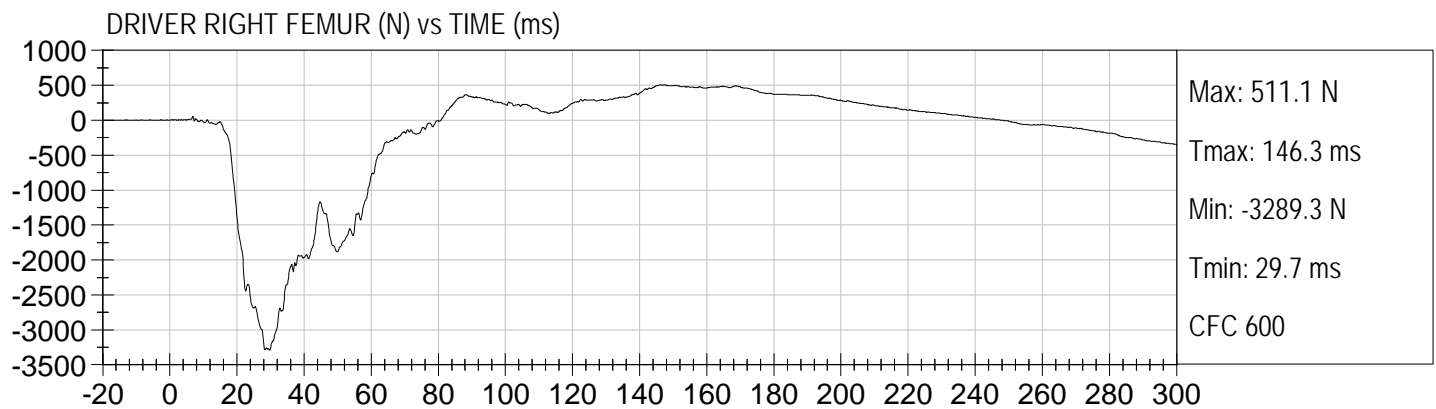
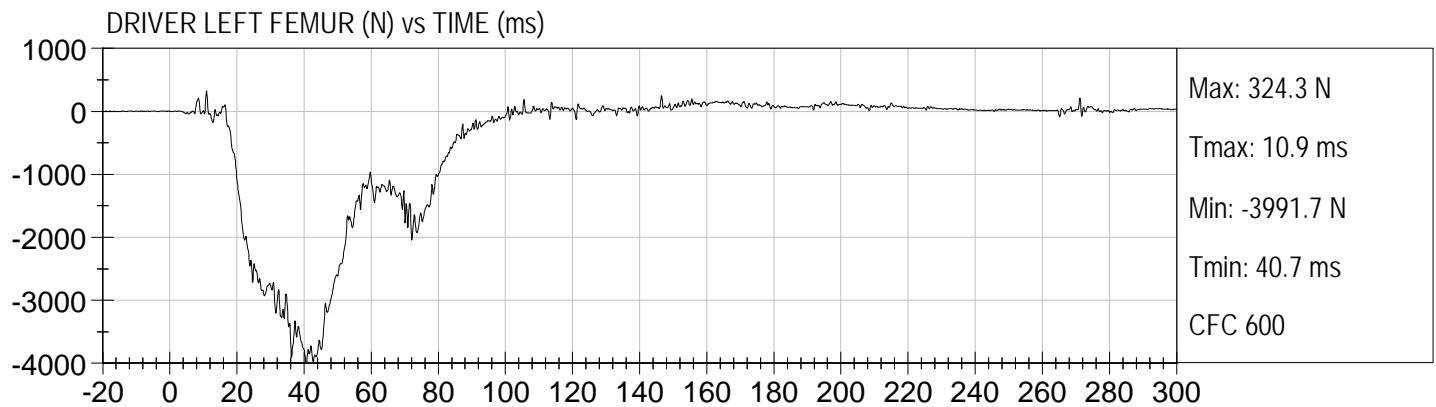
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2008 Smart fortwo (C80511)

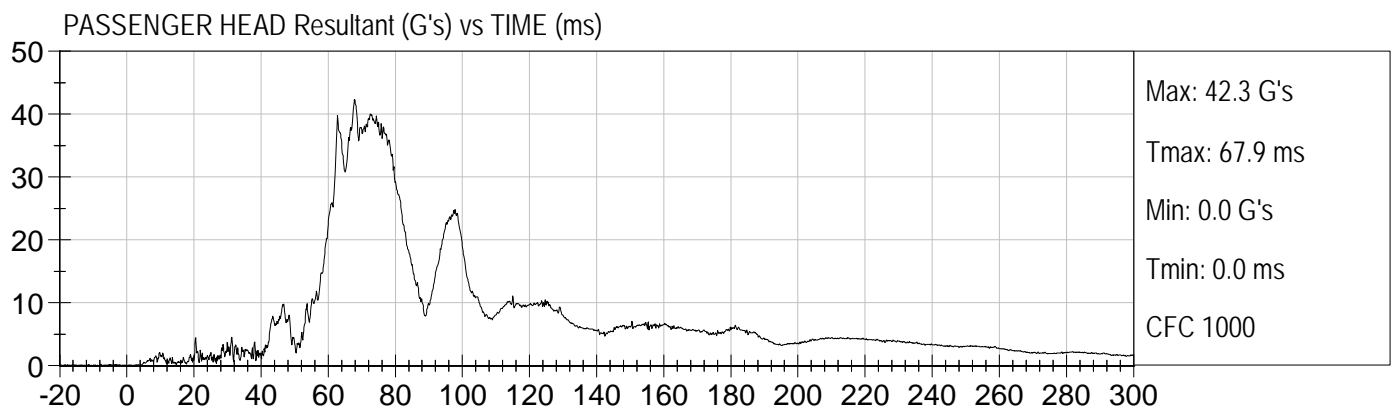
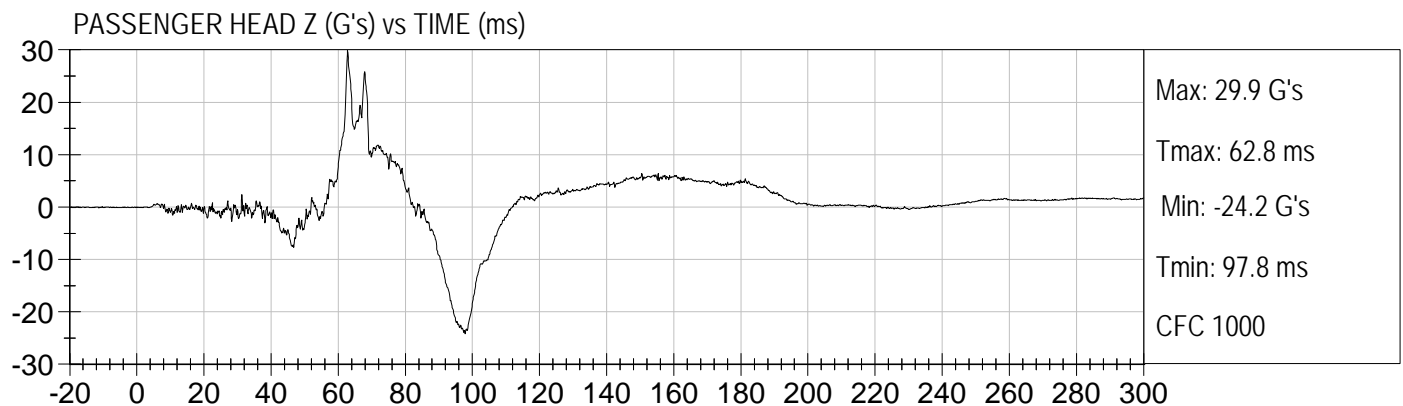
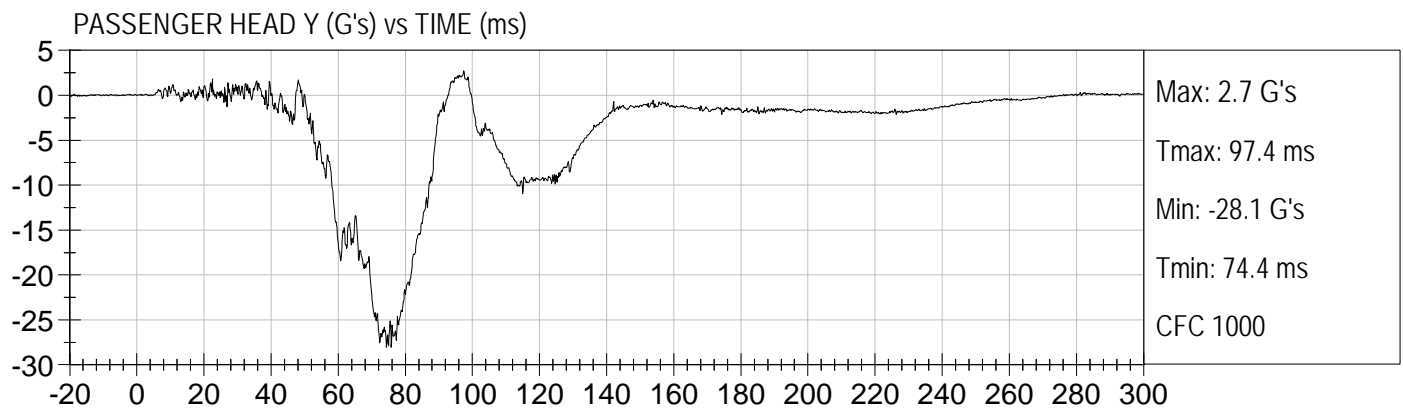
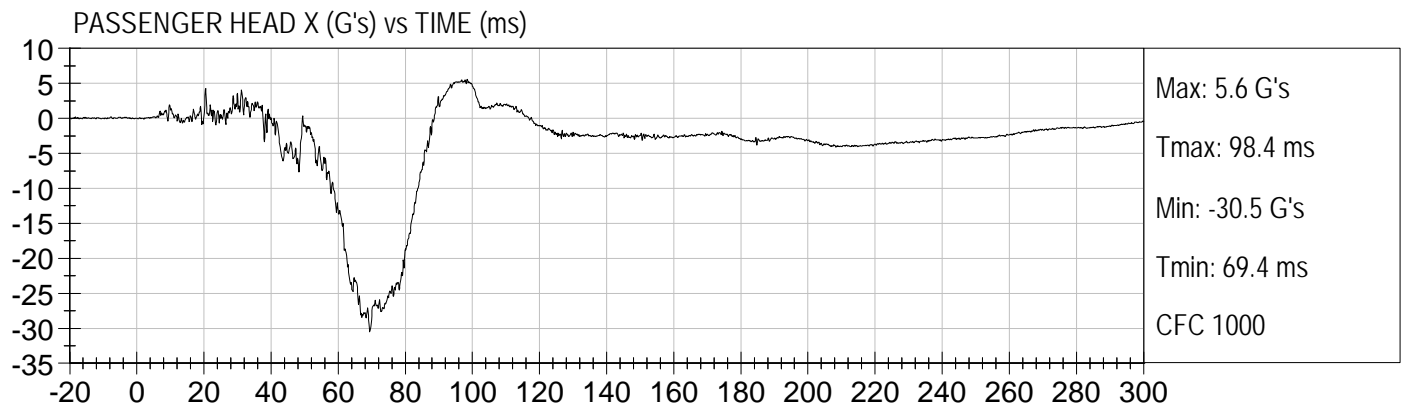
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2008 Smart fortwo (C80511)

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Speed: 24.8 mph (39.9 km/h)



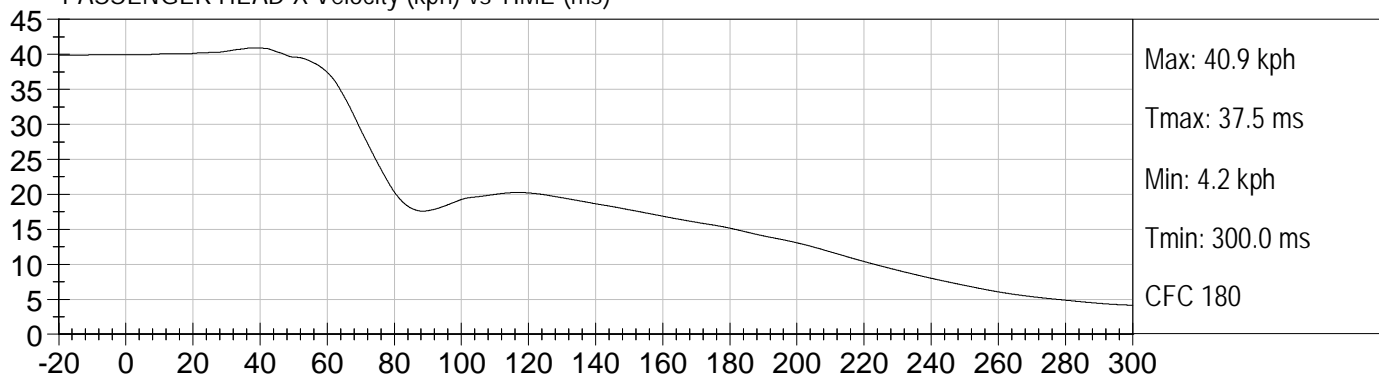




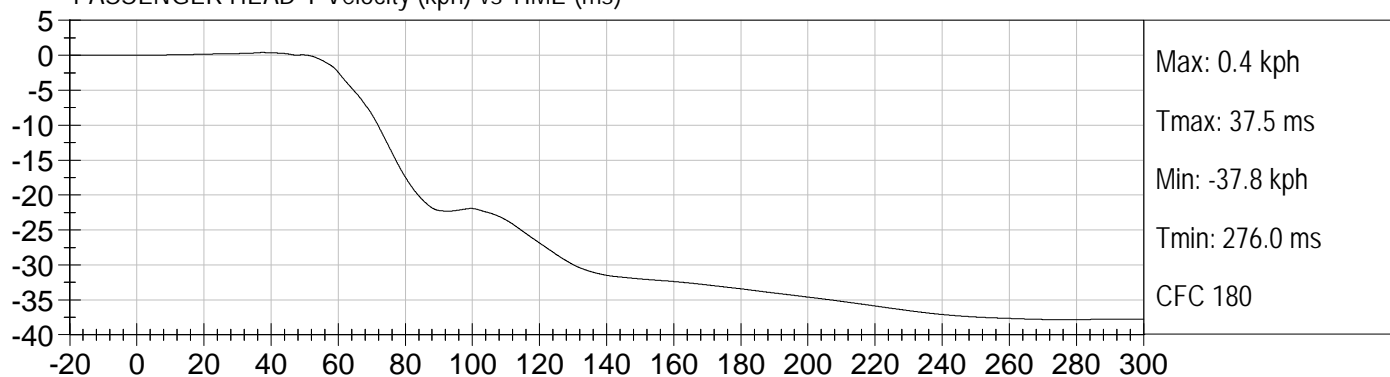
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2008 Smart fortwo (C80511)

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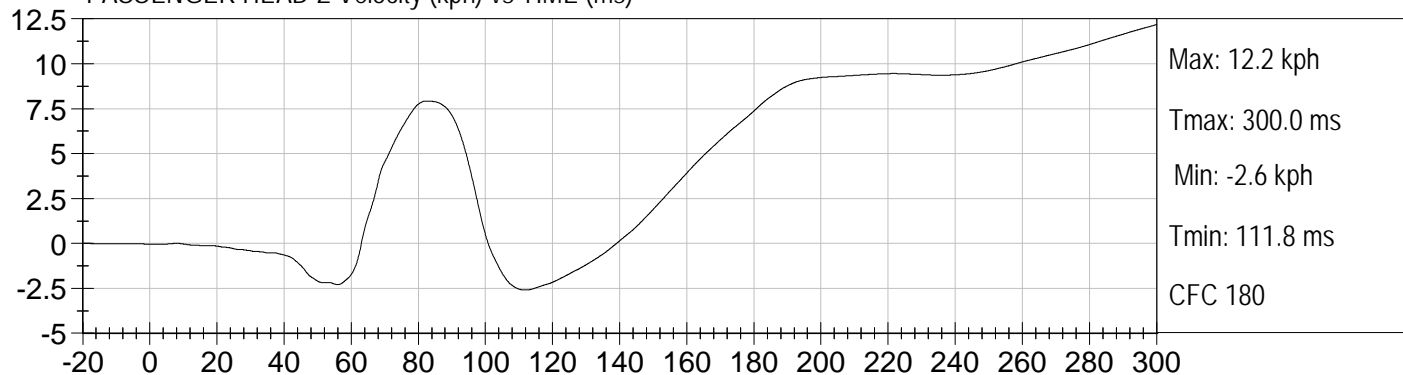
PASSENGER HEAD X Velocity (kph) vs TIME (ms)



PASSENGER HEAD Y Velocity (kph) vs TIME (ms)



PASSENGER HEAD Z Velocity (kph) vs TIME (ms)

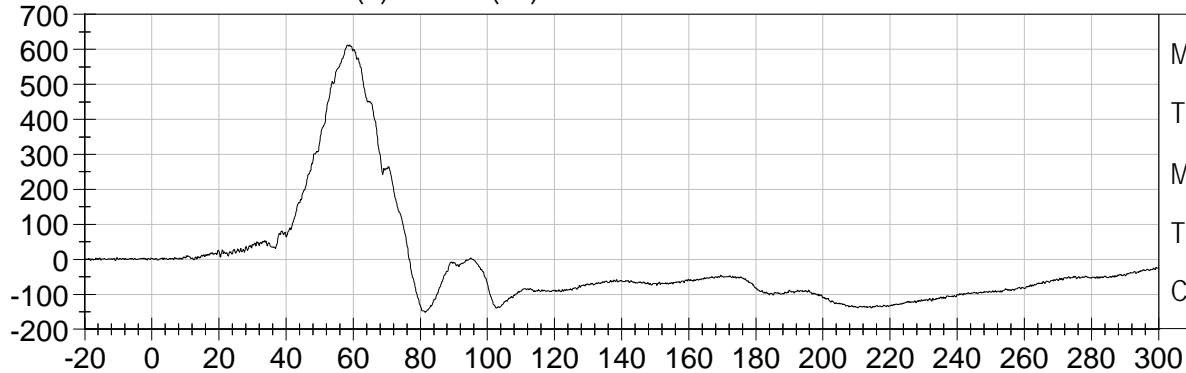




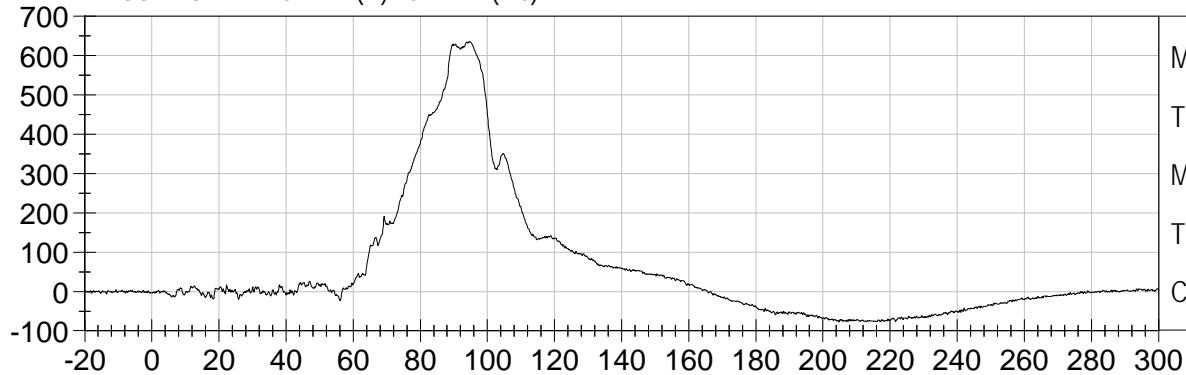
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2008 Smart fortwo (C80511)

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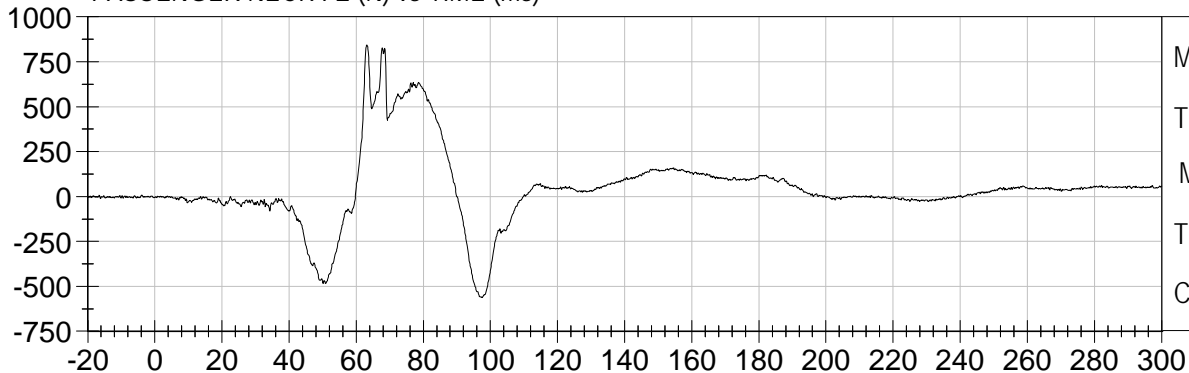
PASSENGER NECK FX (N) vs TIME (ms)



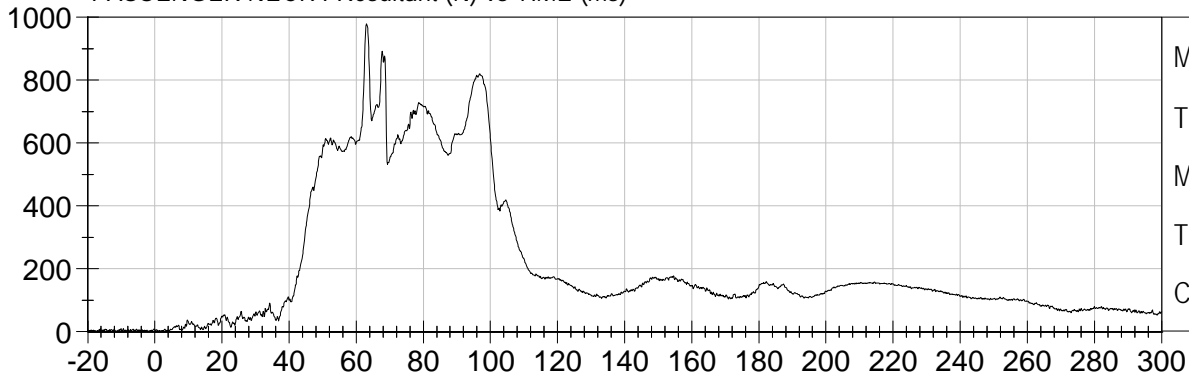
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PASSENGER NECK FZ (N) vs TIME (ms)



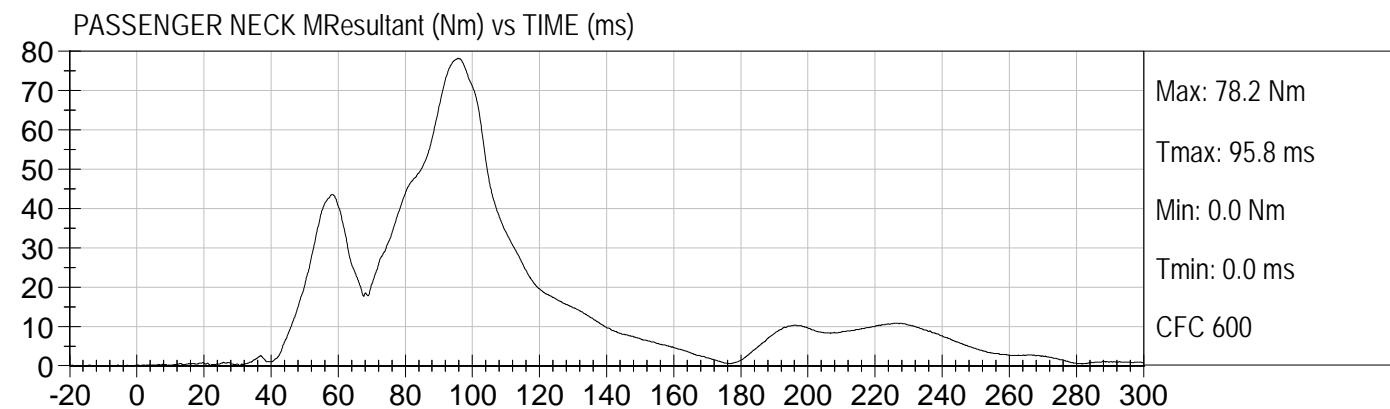
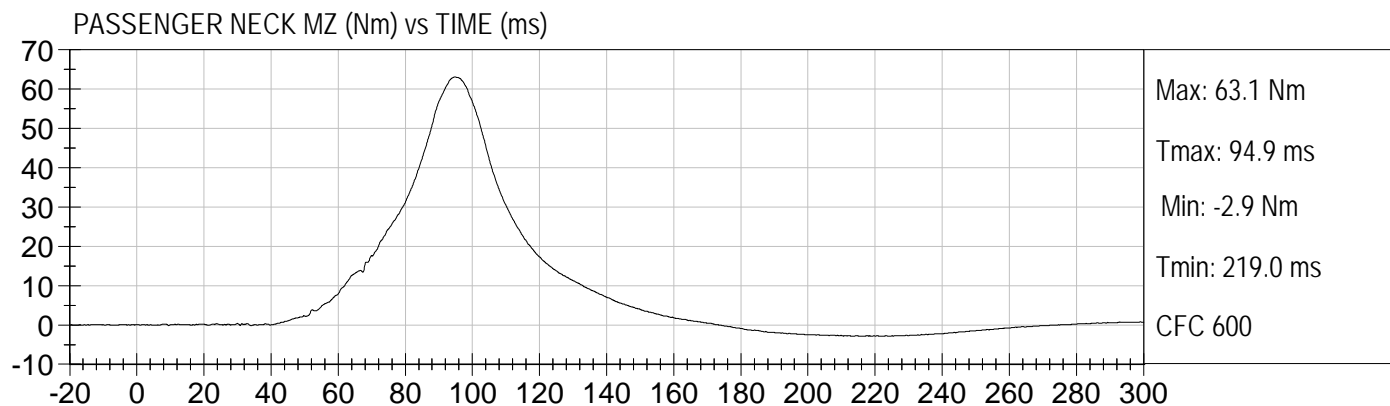
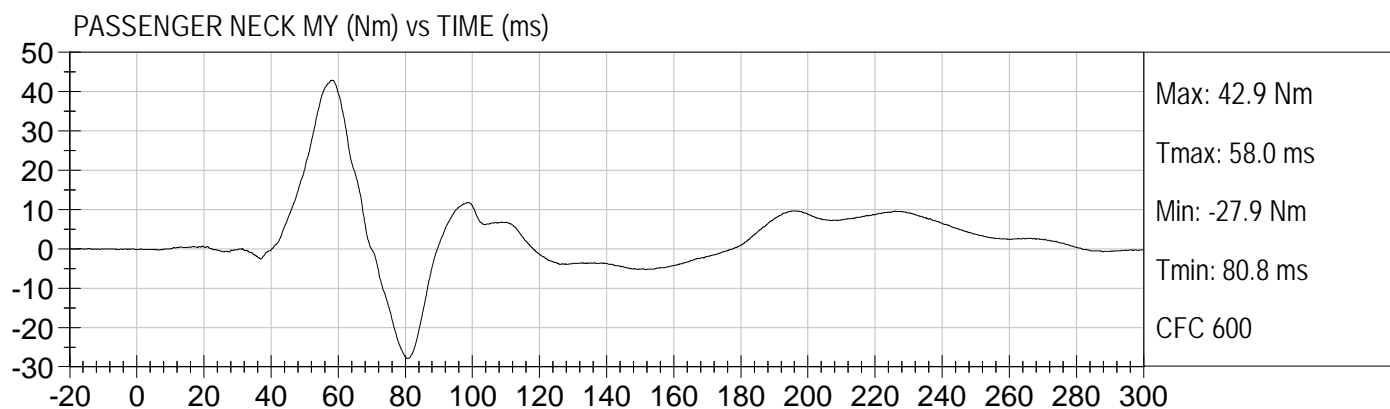
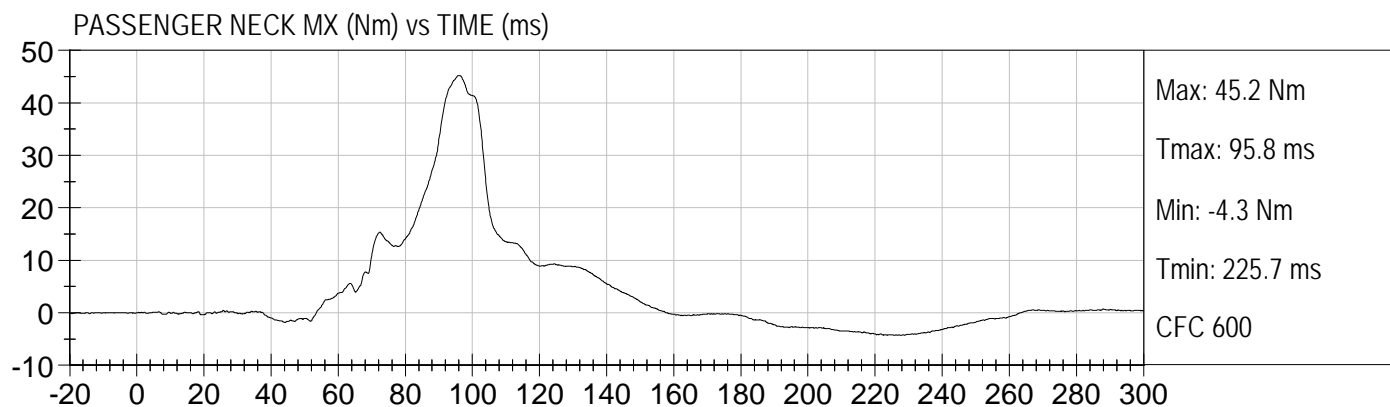
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25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

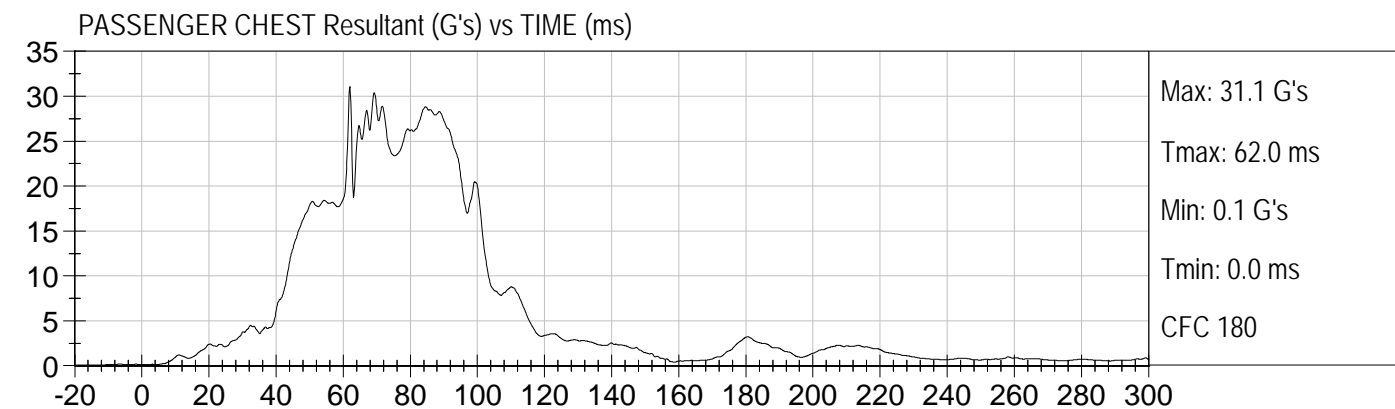
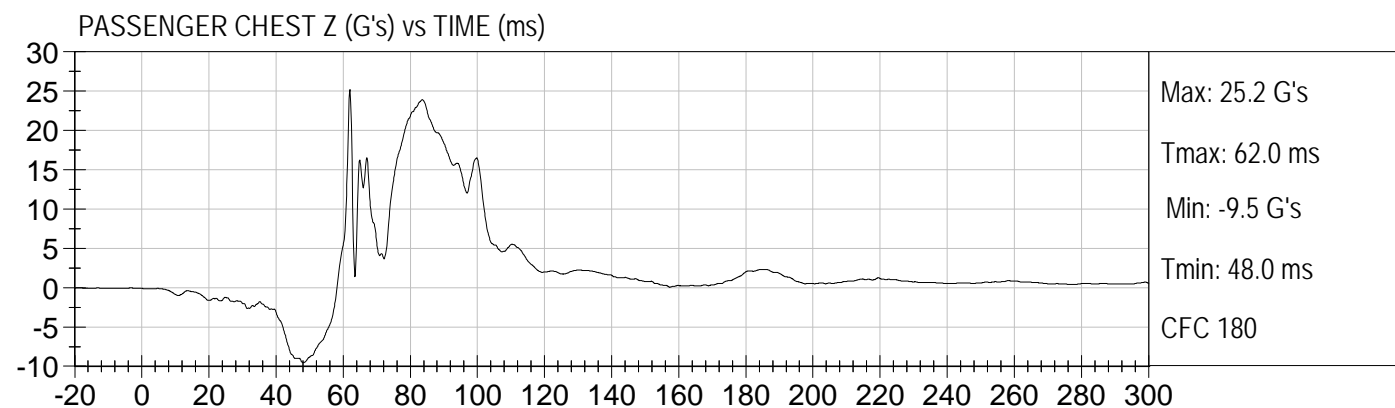
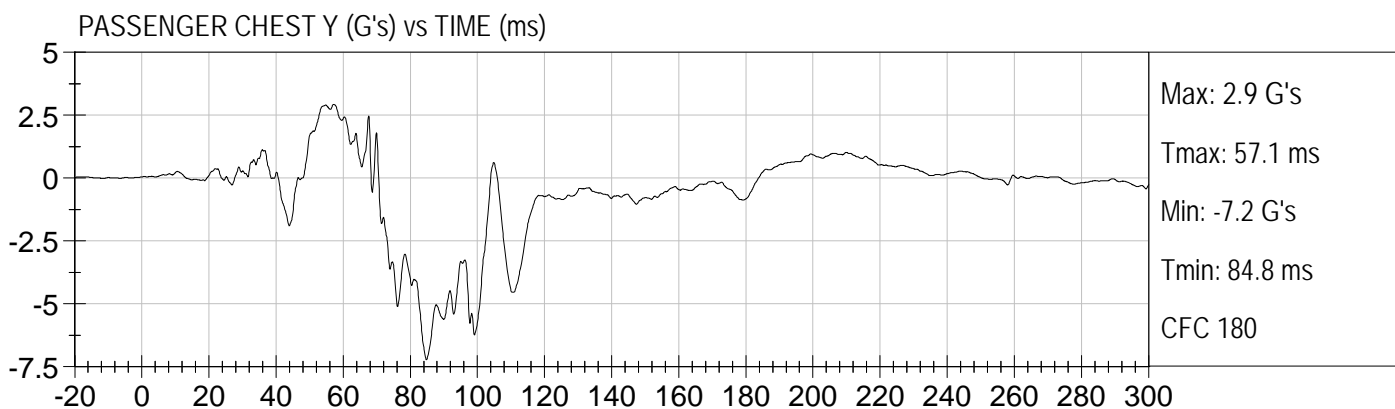
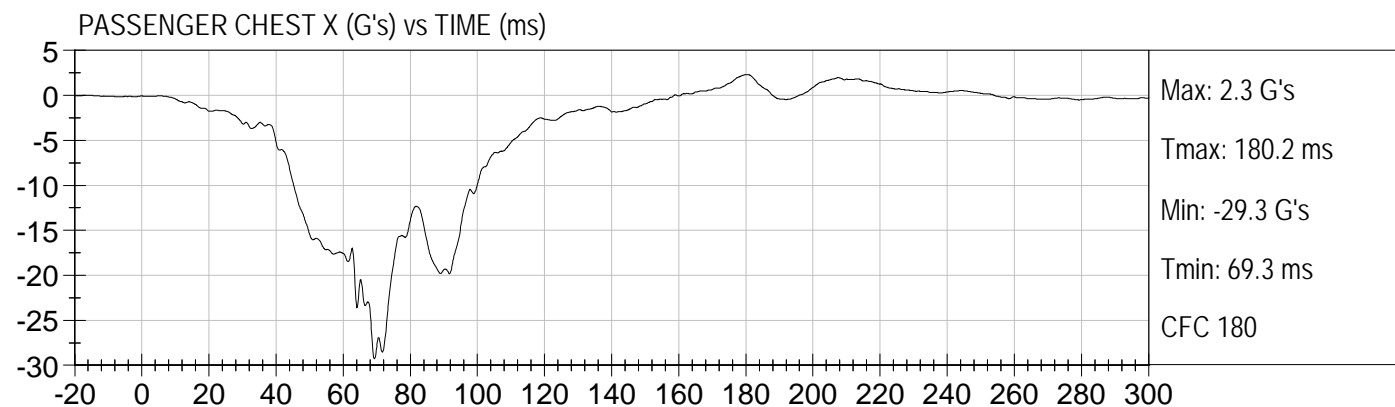
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Speed: 24.8 mph (39.9 km/h)





25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

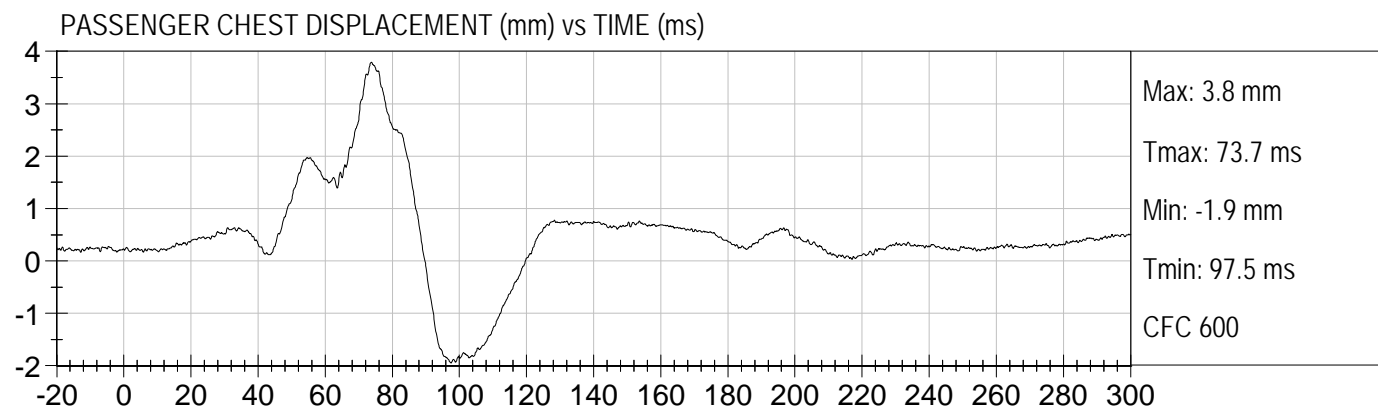
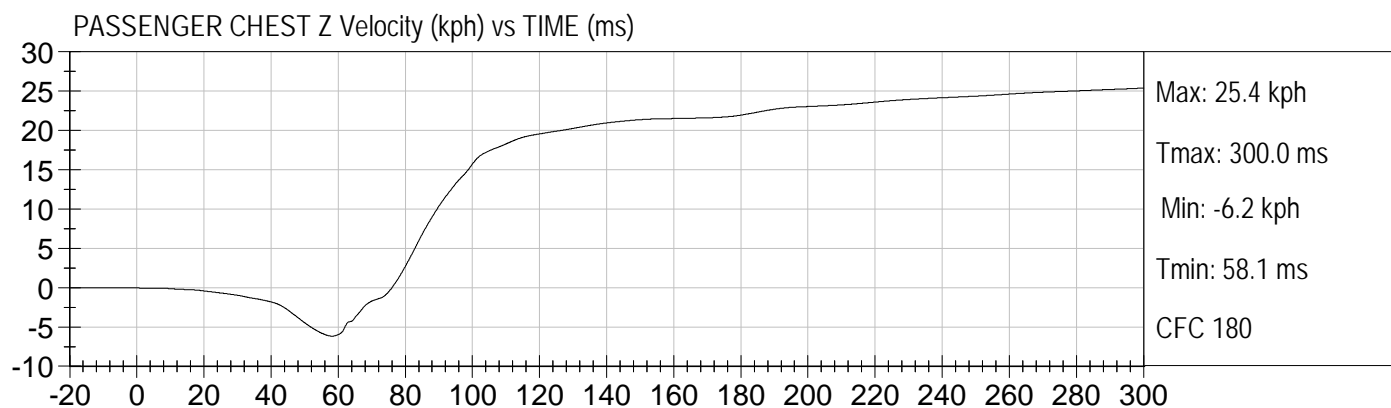
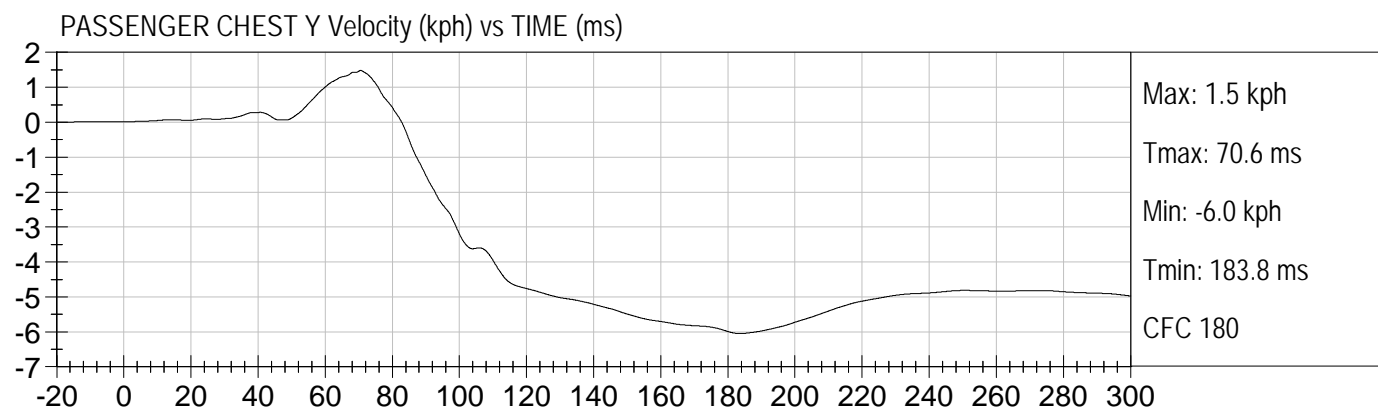
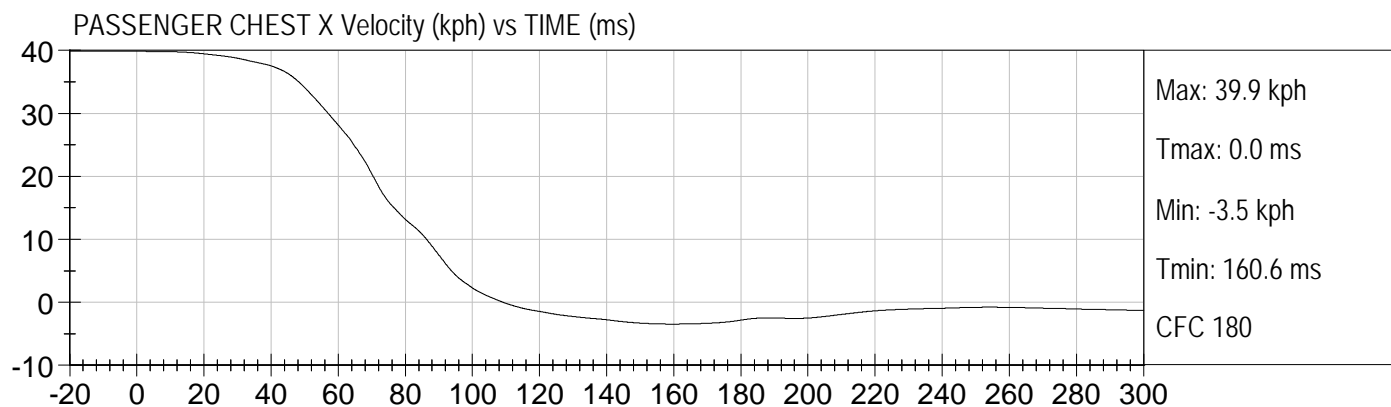
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25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

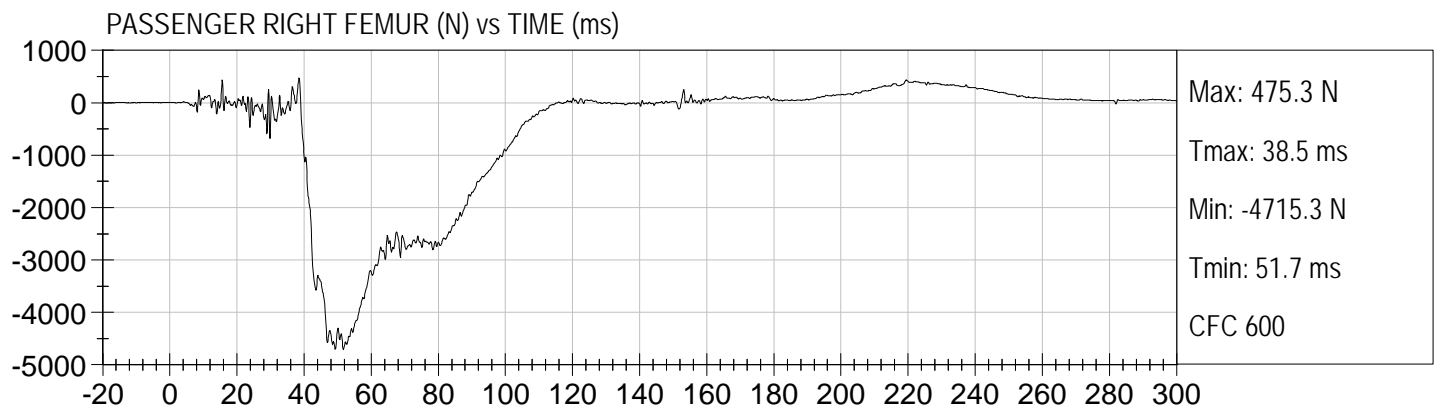
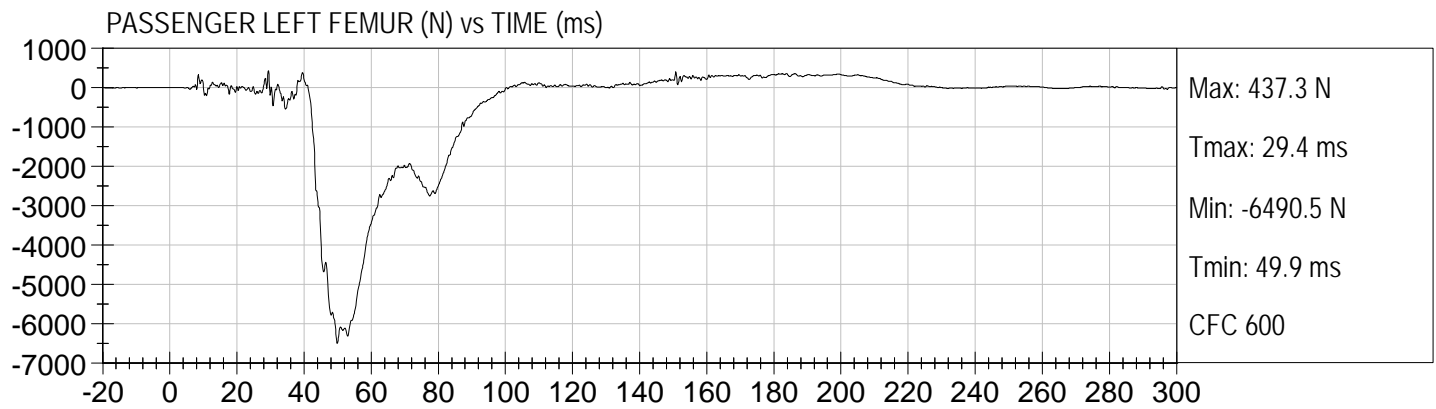
Test Date: 05/05/2008  
Speed: 24.8 mph (39.9 km/h)





25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

Test Date: 05/05/2008  
Speed: 24.8 mph (39.9 km/h)

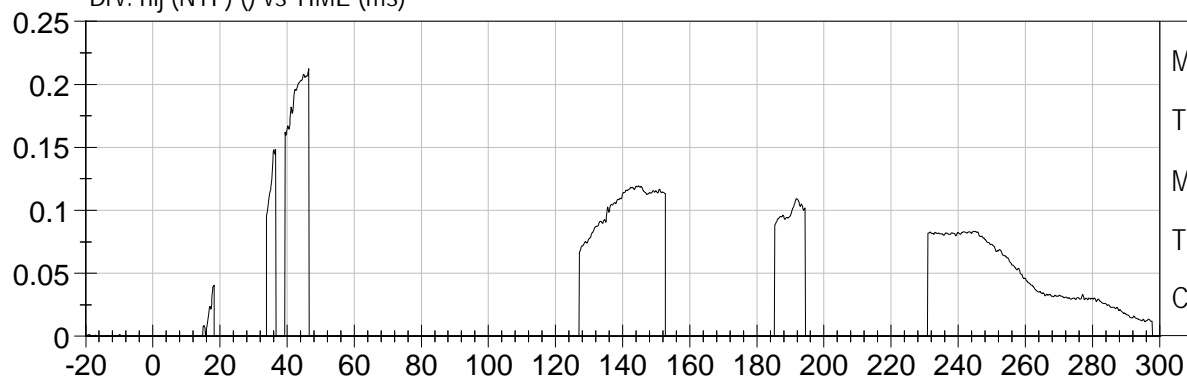




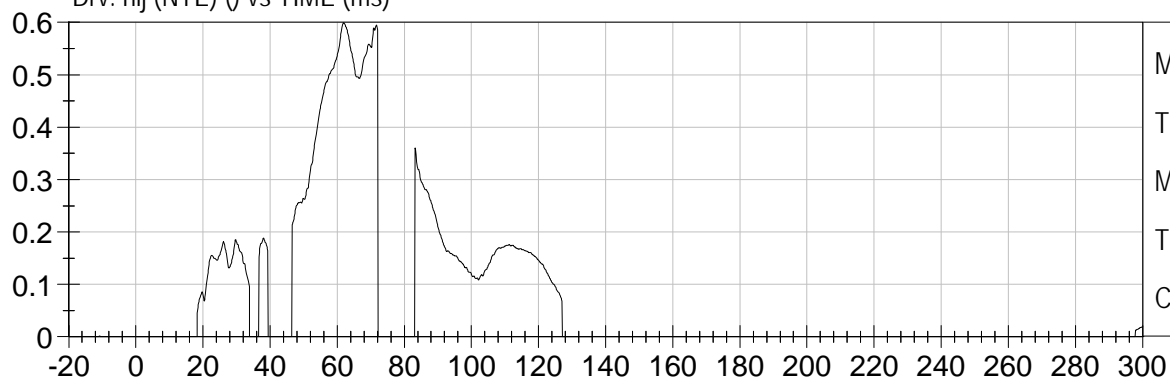
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2008 Smart fortwo (C80511)

Test Date: 05/05/2008  
Speed: 24.8 mph (39.9 km/h)

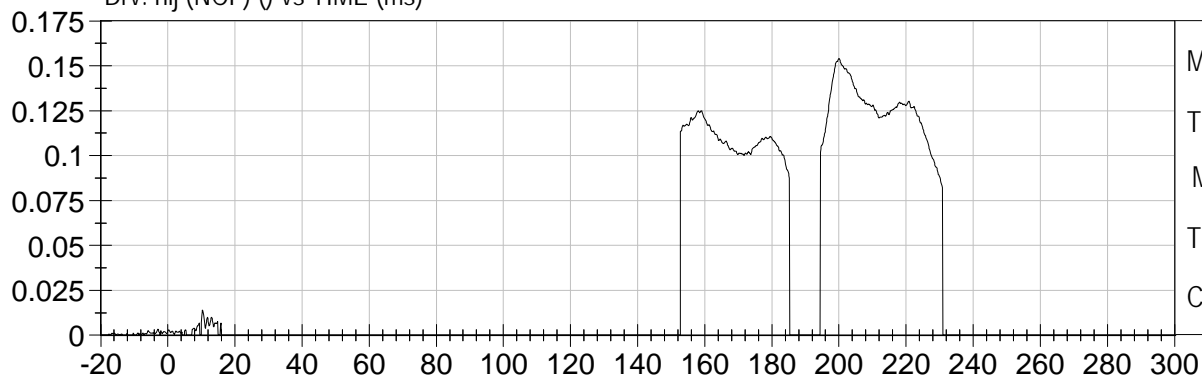
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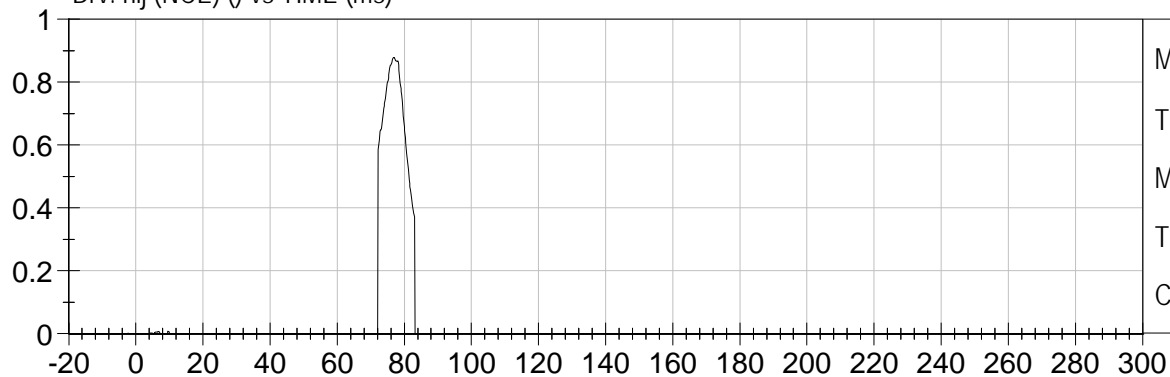
Drv. nij (NTE) () vs TIME (ms)



Drv. nij (NCF) () vs TIME (ms)



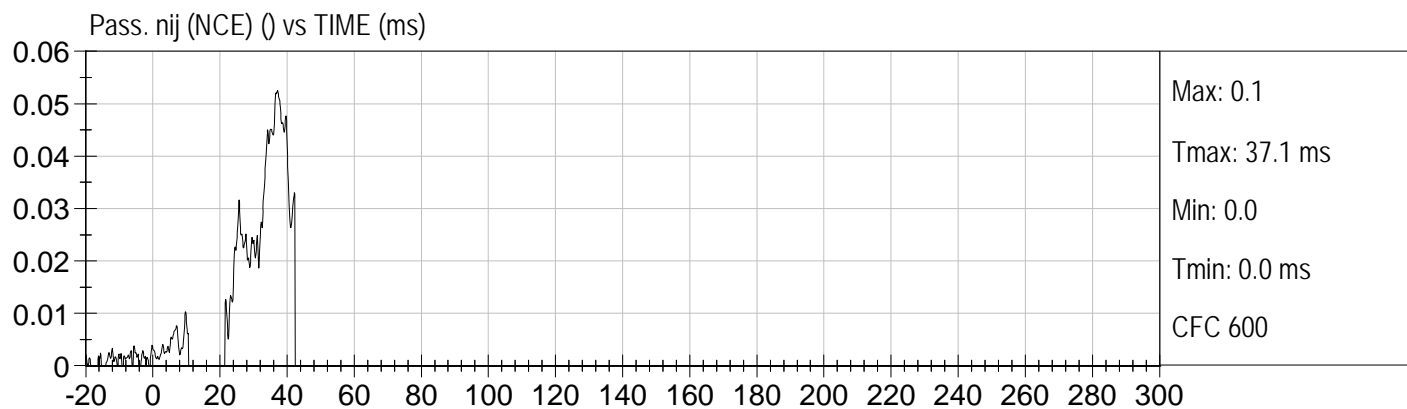
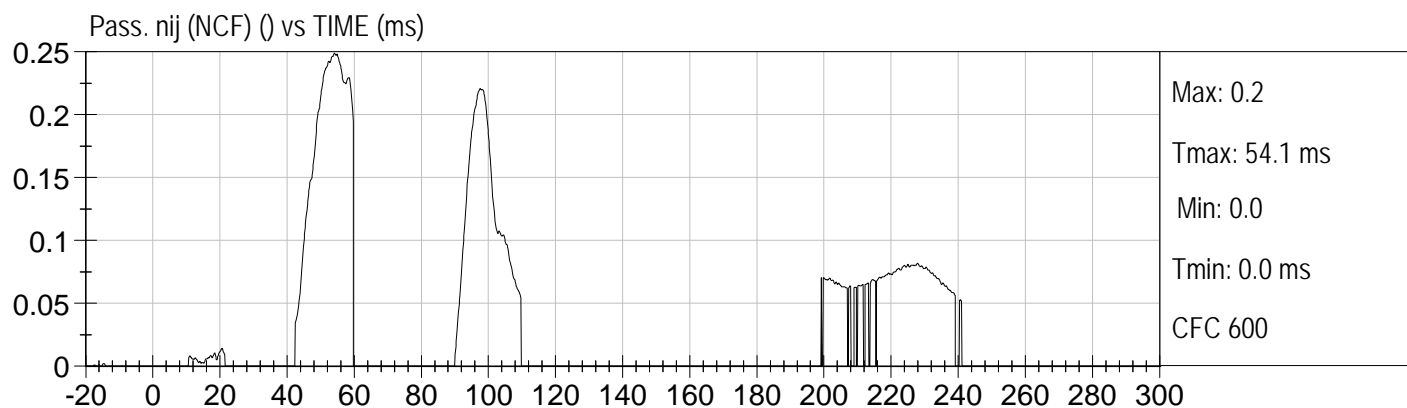
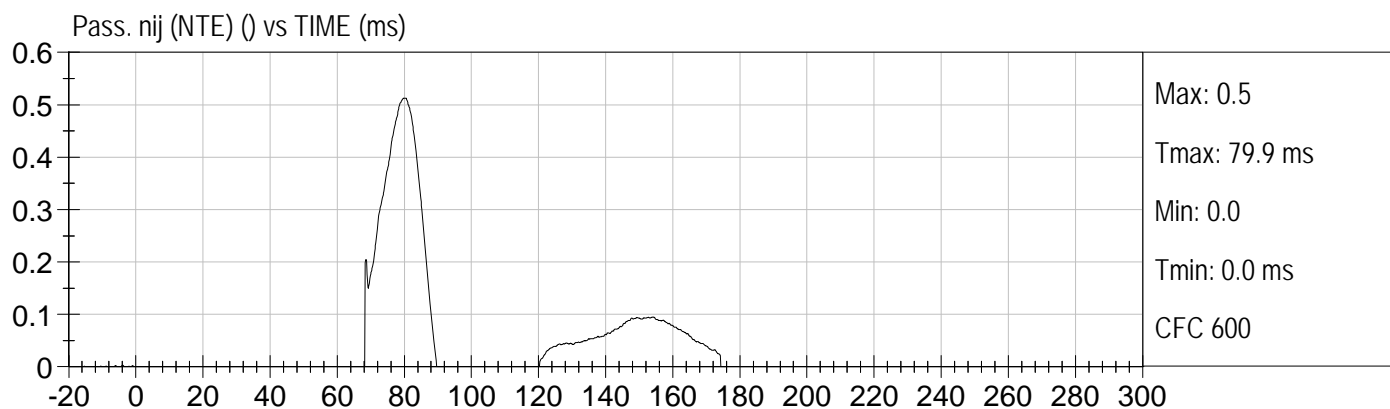
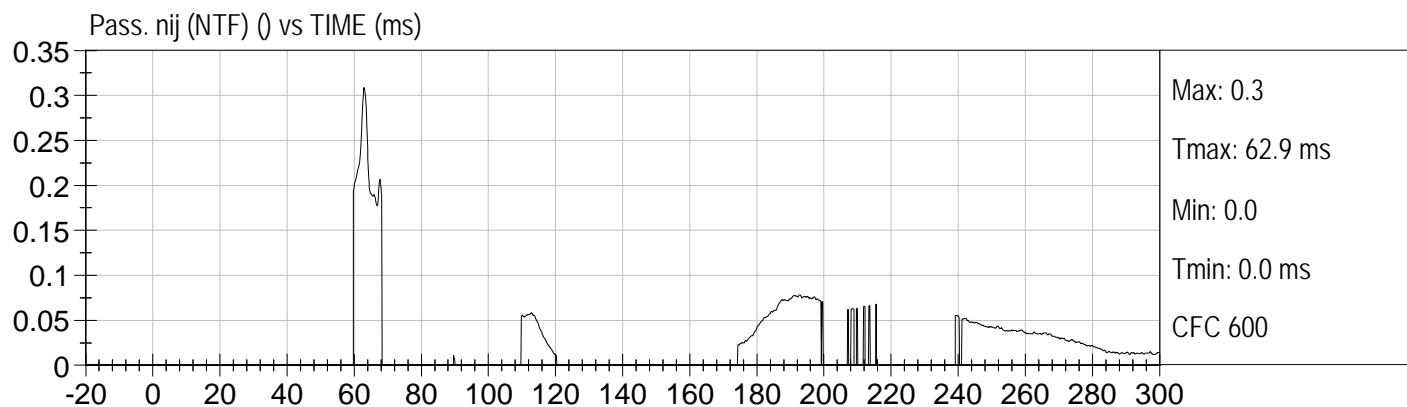
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25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

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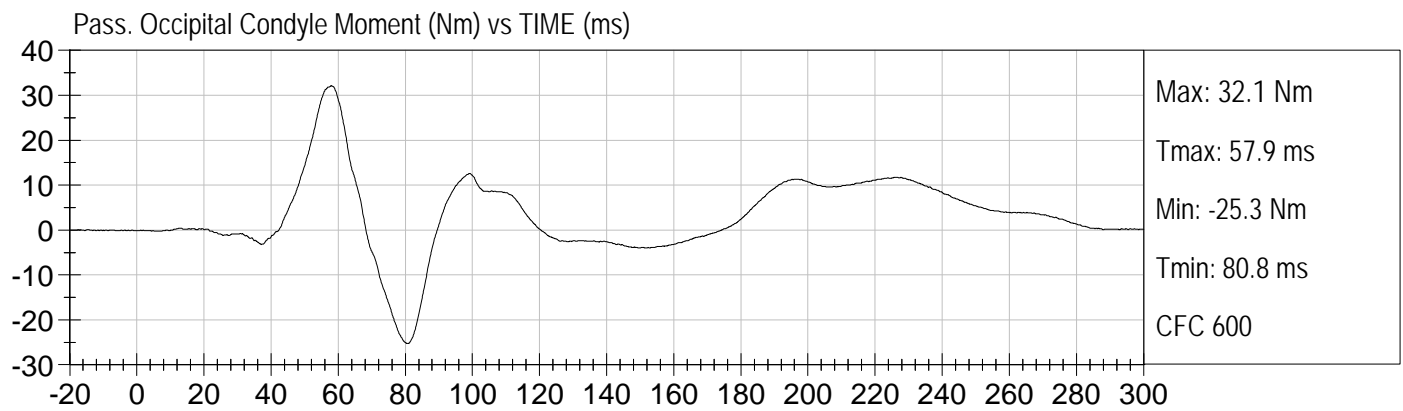
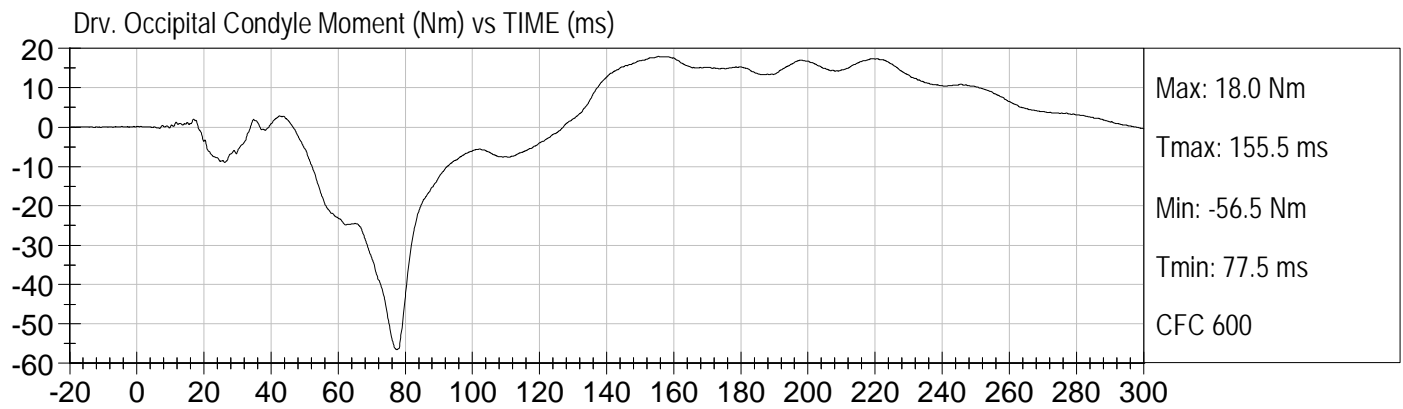






25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

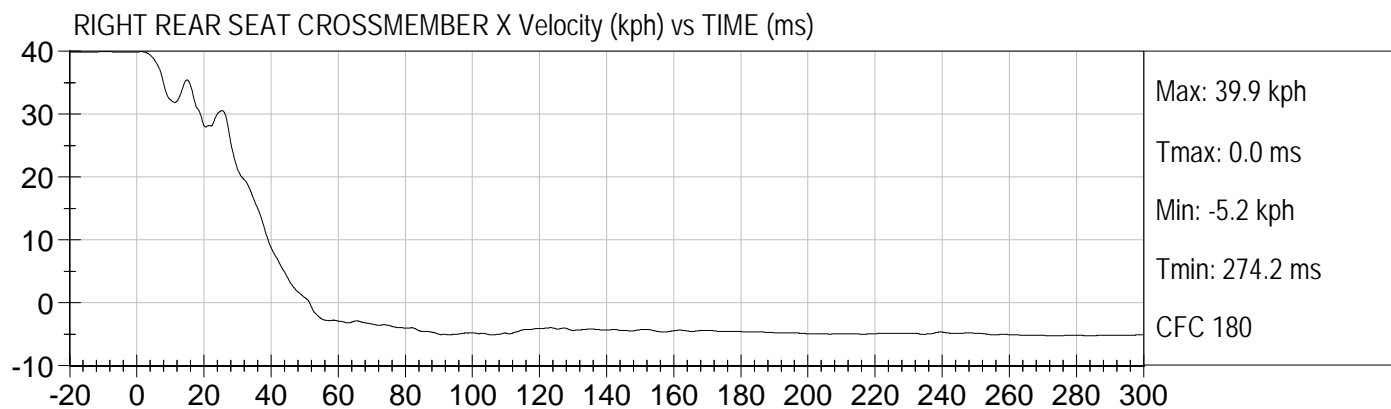
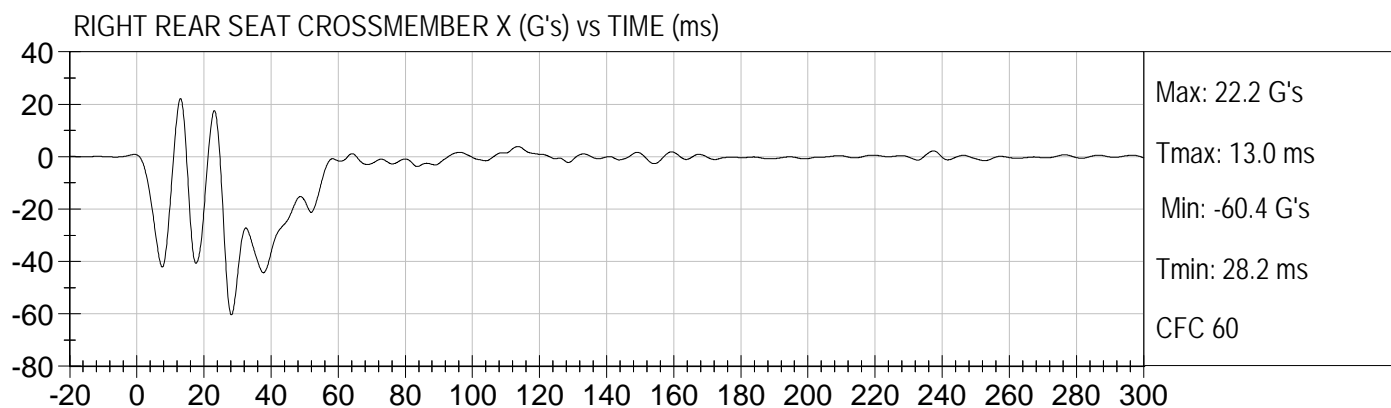
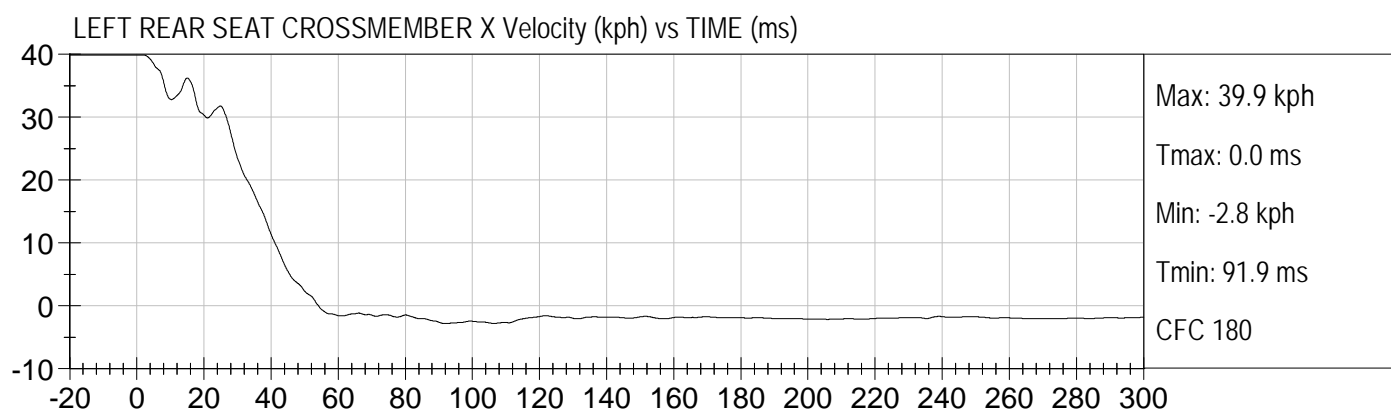
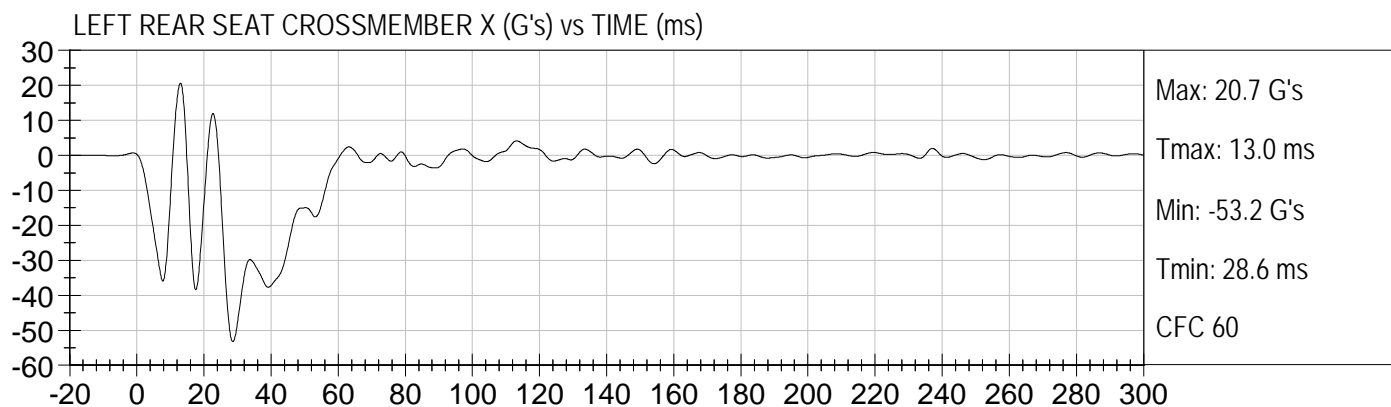
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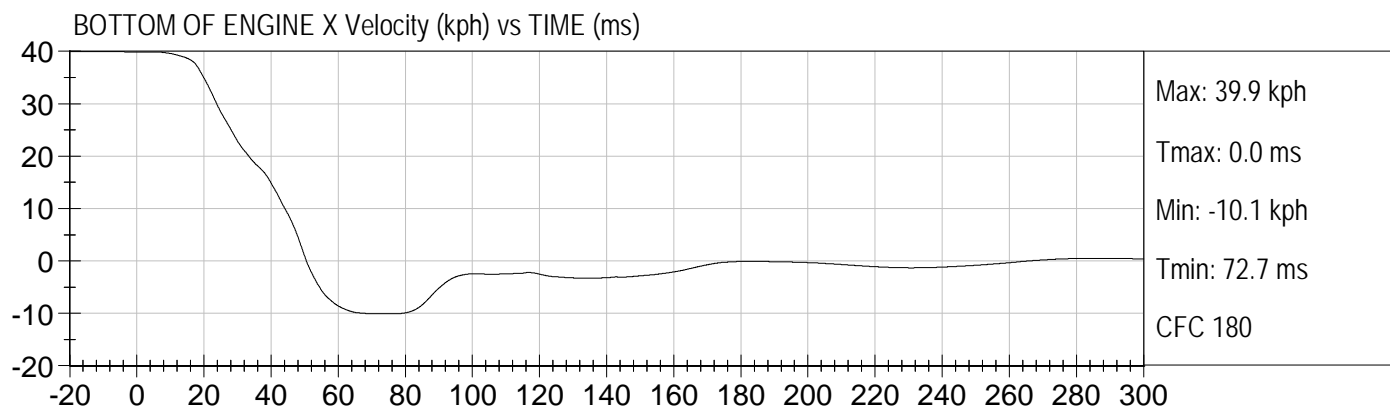
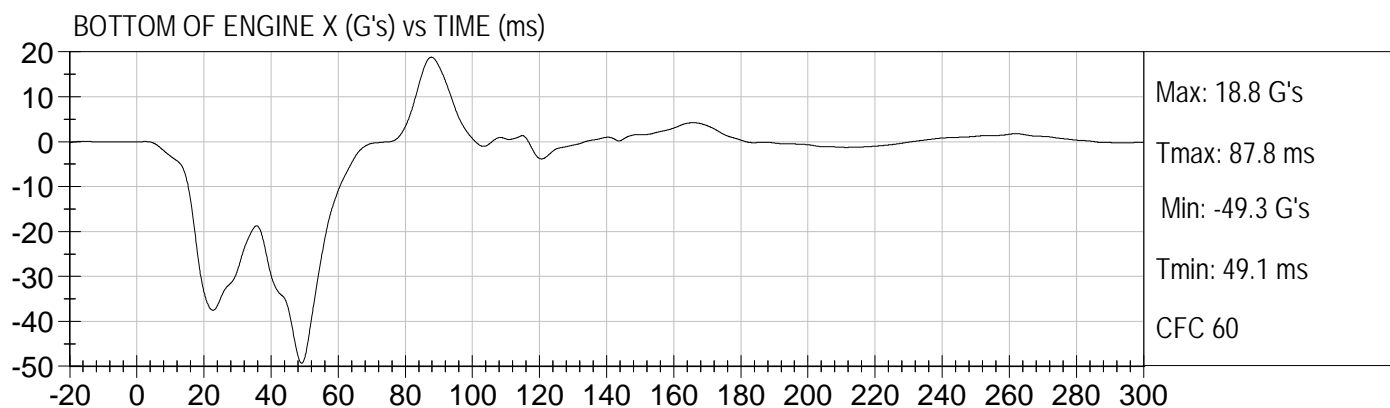
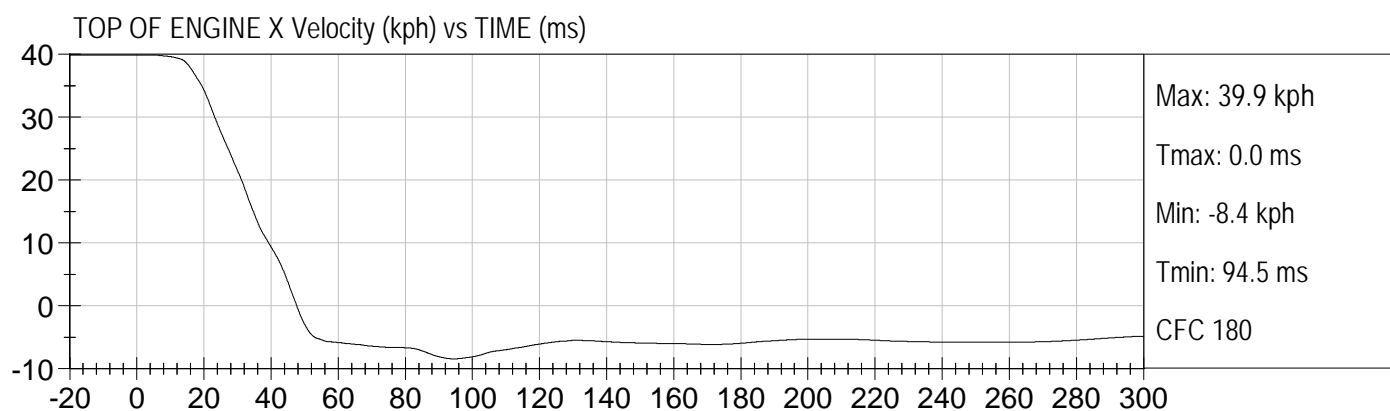
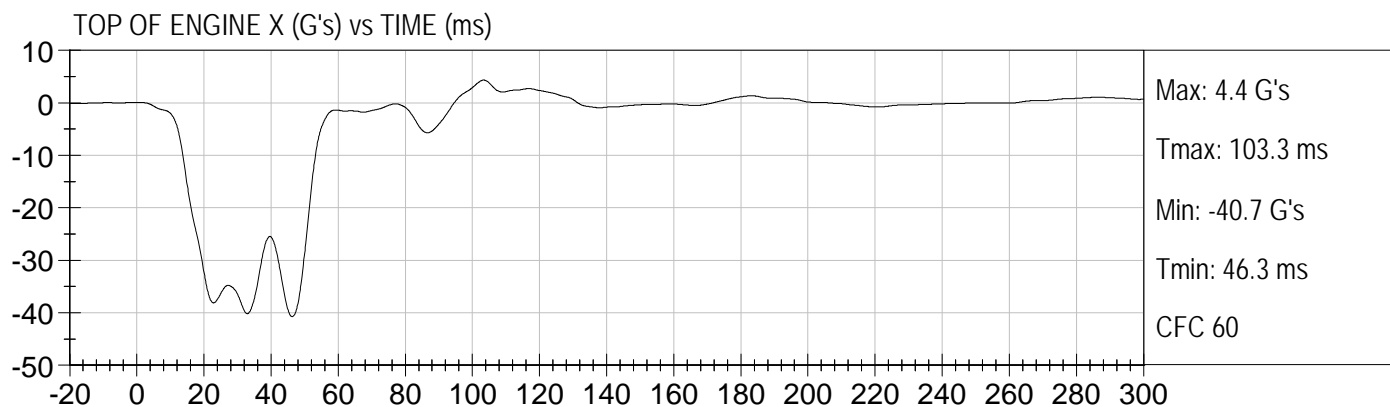




25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

Test Date: 05/05/2008  
Speed: 24.8 mph (39.9 km/h)

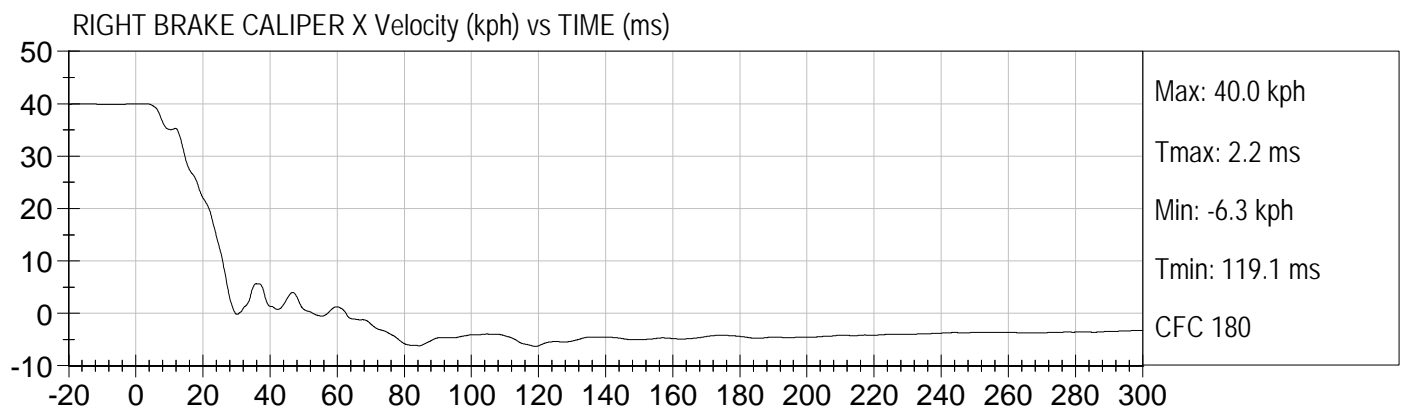
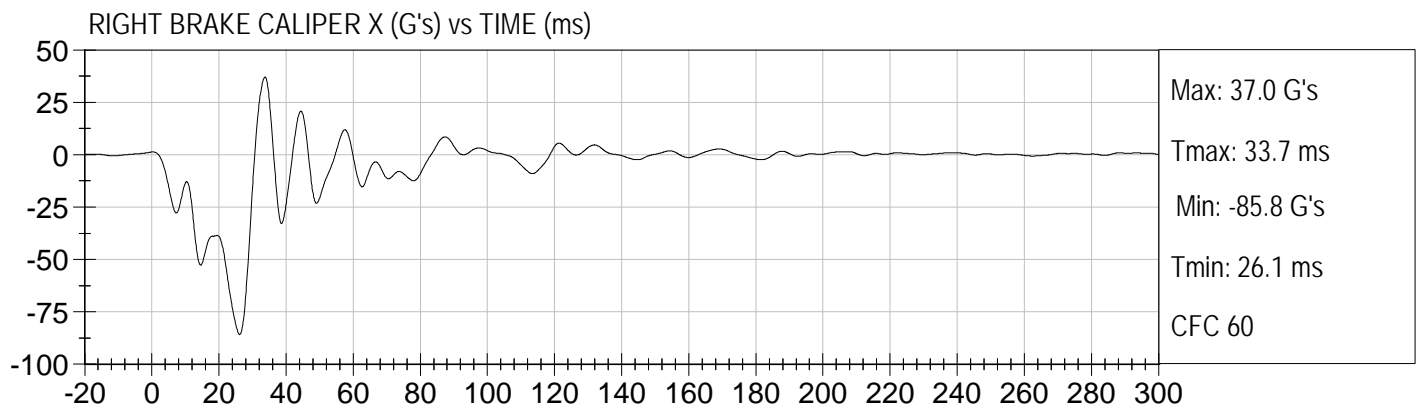
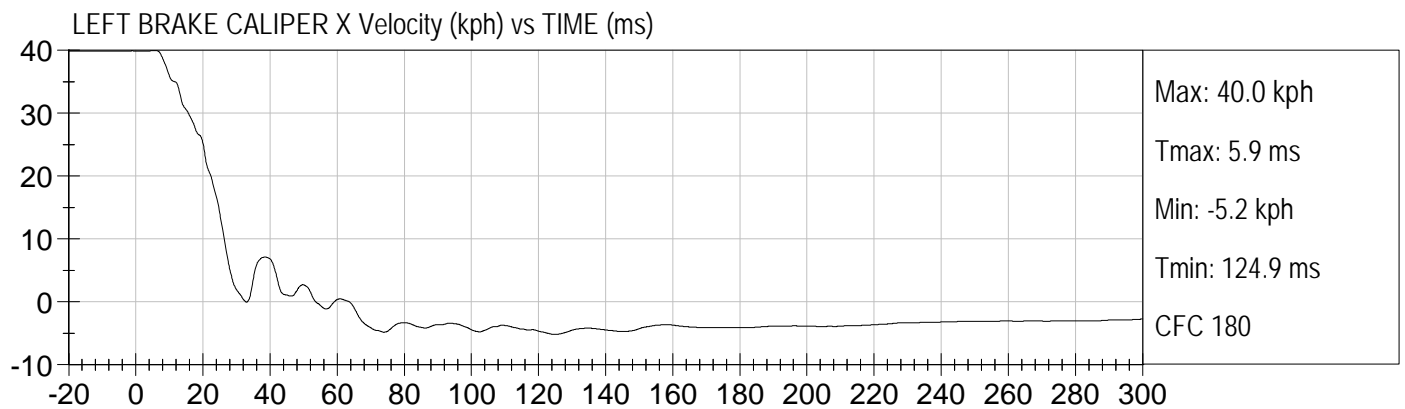
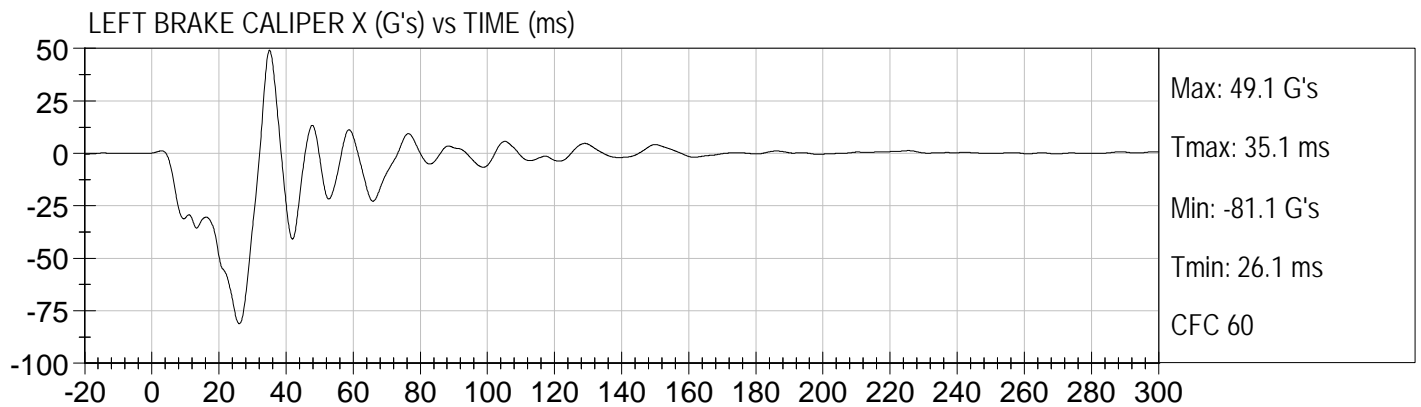






25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

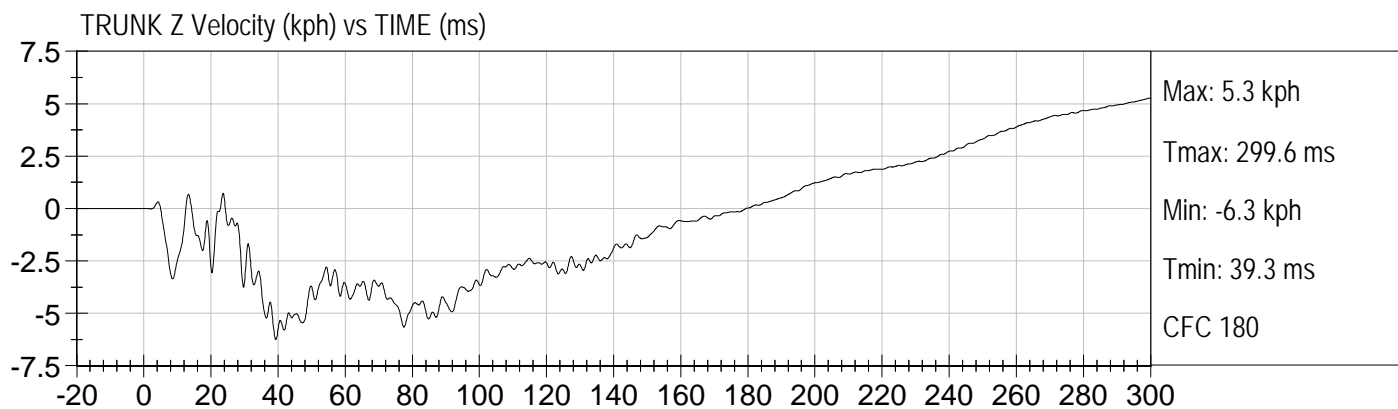
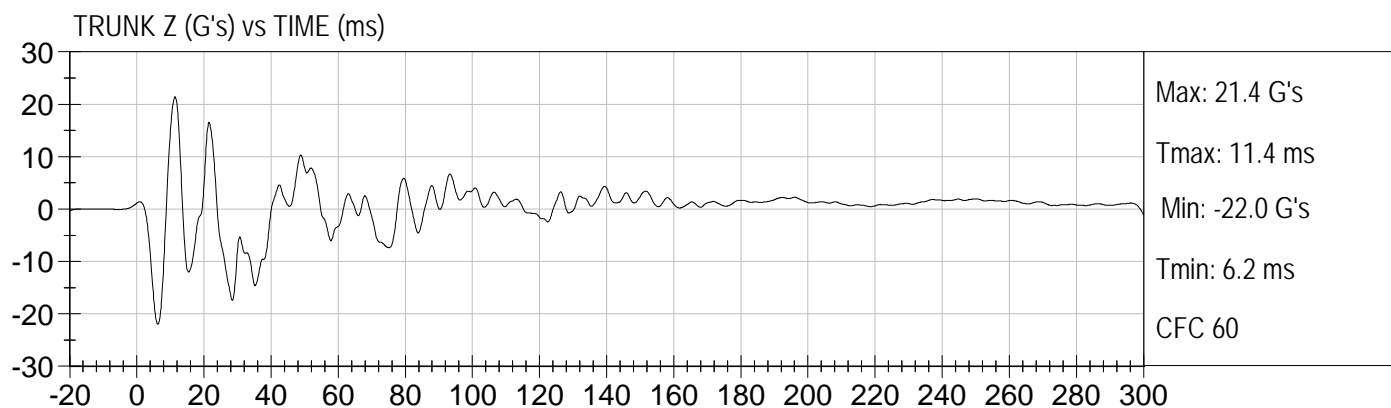
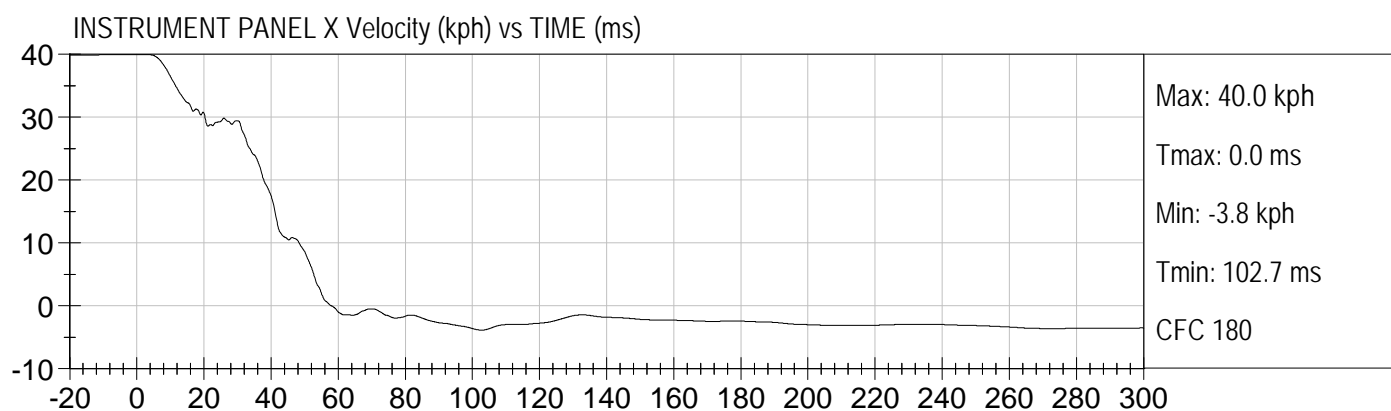
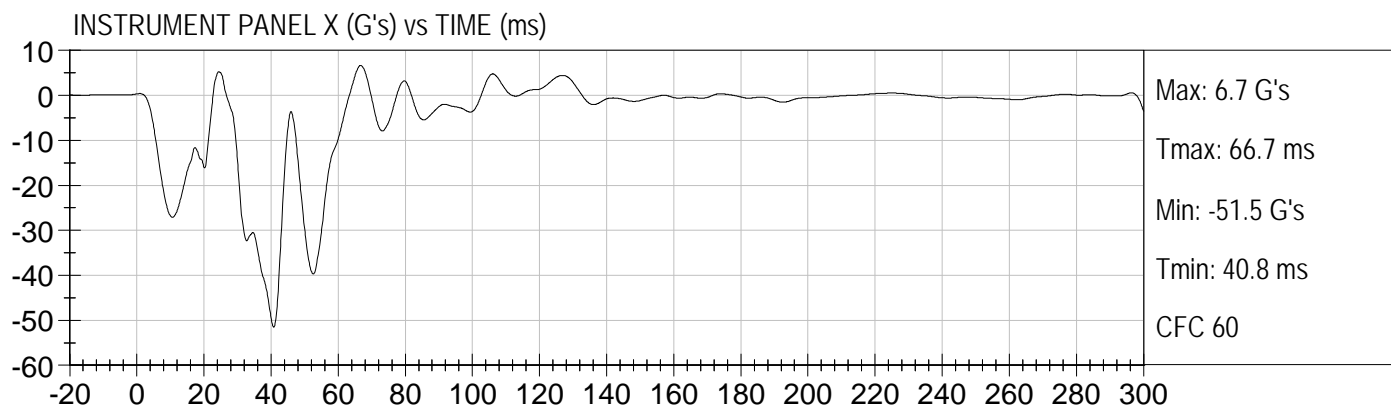
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2008 Smart fortwo (C80511)

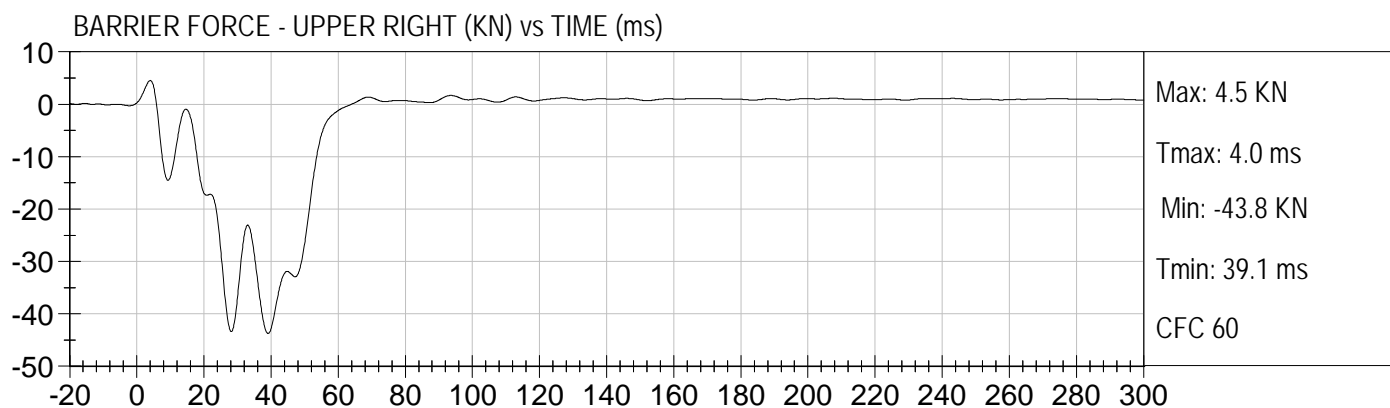
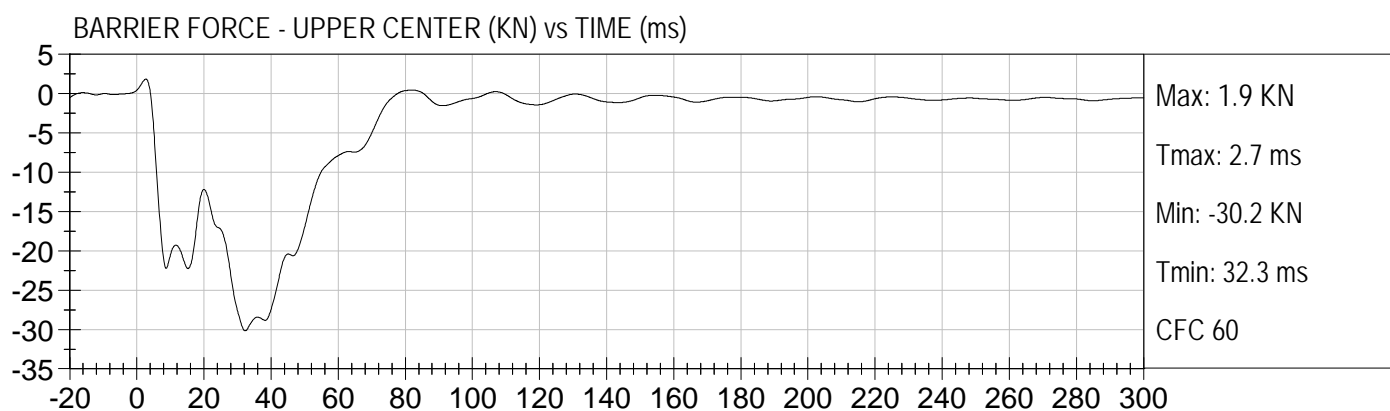
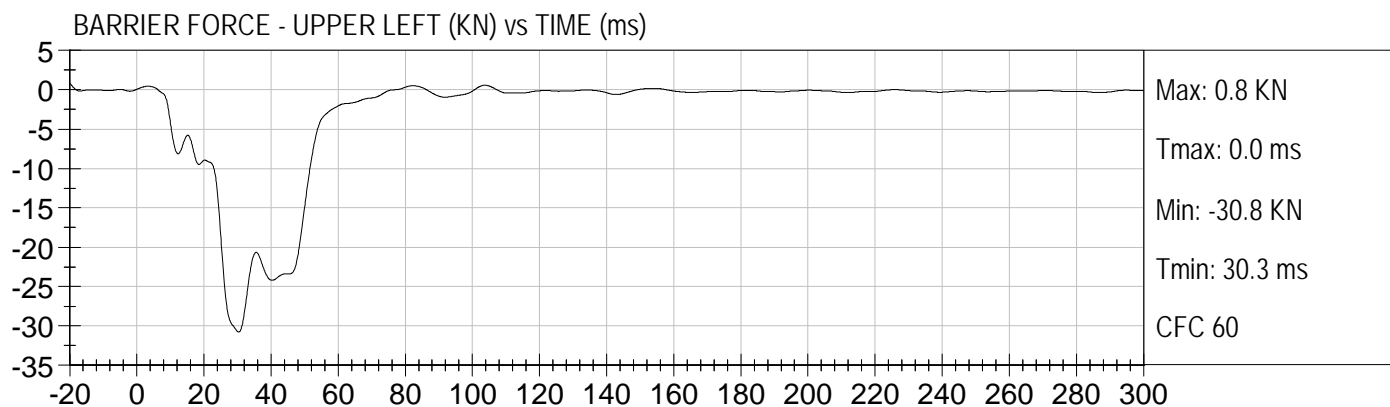
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2008 Smart fortwo (C80511)

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Speed: 24.8 mph (39.9 km/h)

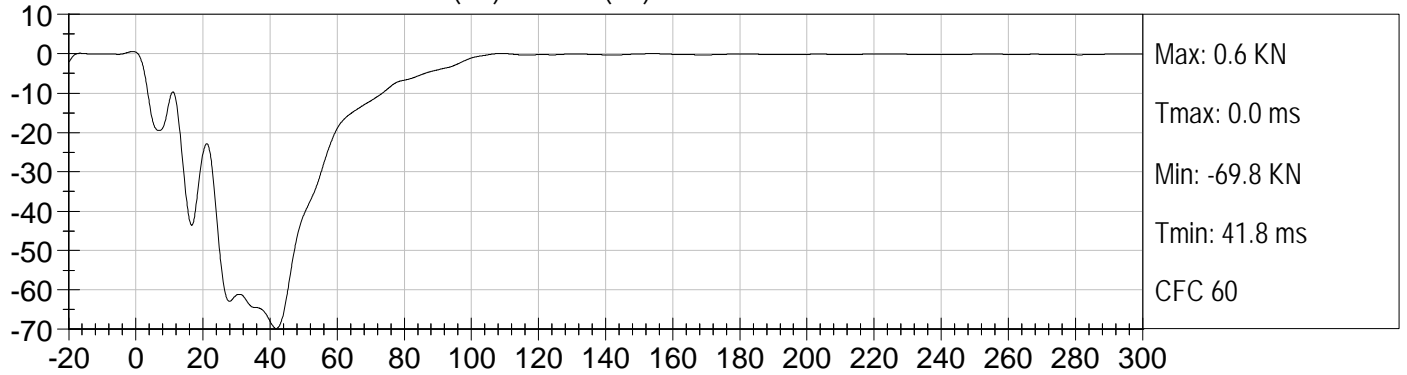




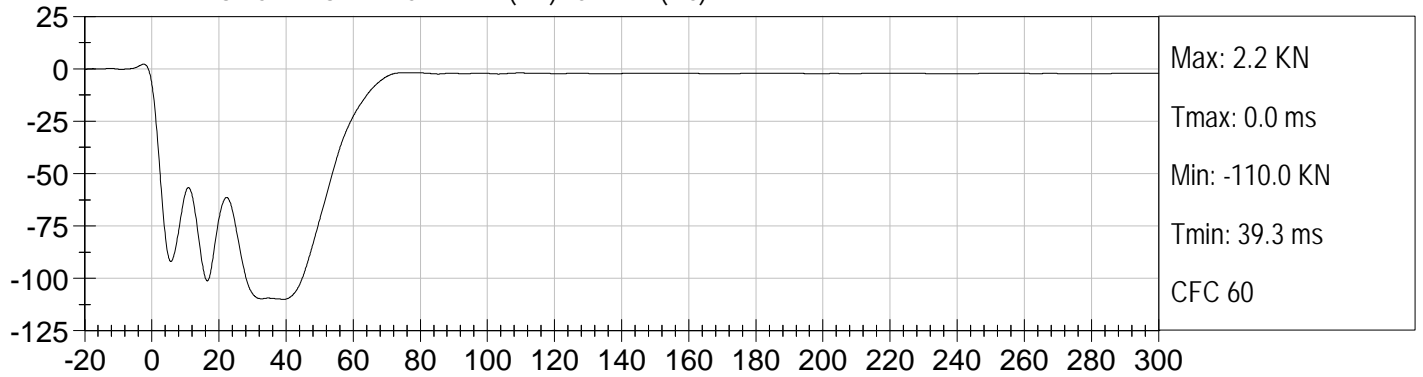
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2008 Smart fortwo (C80511)

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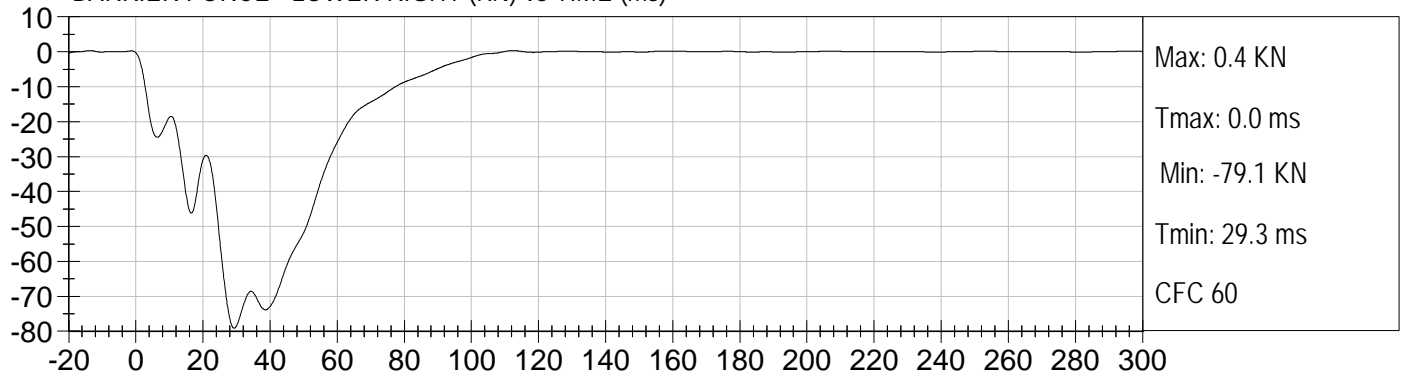
BARRIER FORCE - LOWER LEFT (KN) vs TIME (ms)



BARRIER FORCE - LOWER CENTER (KN) vs TIME (ms)



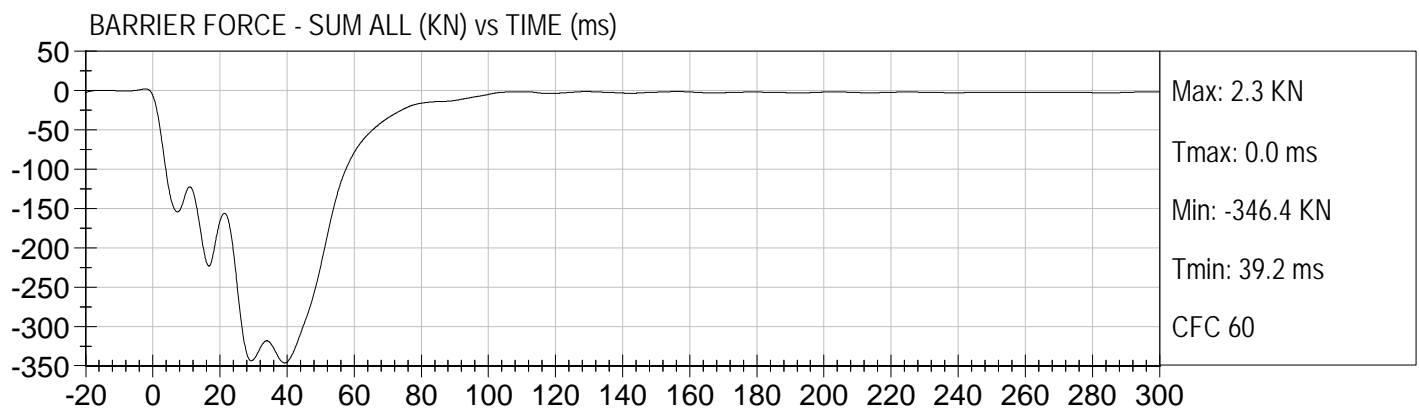
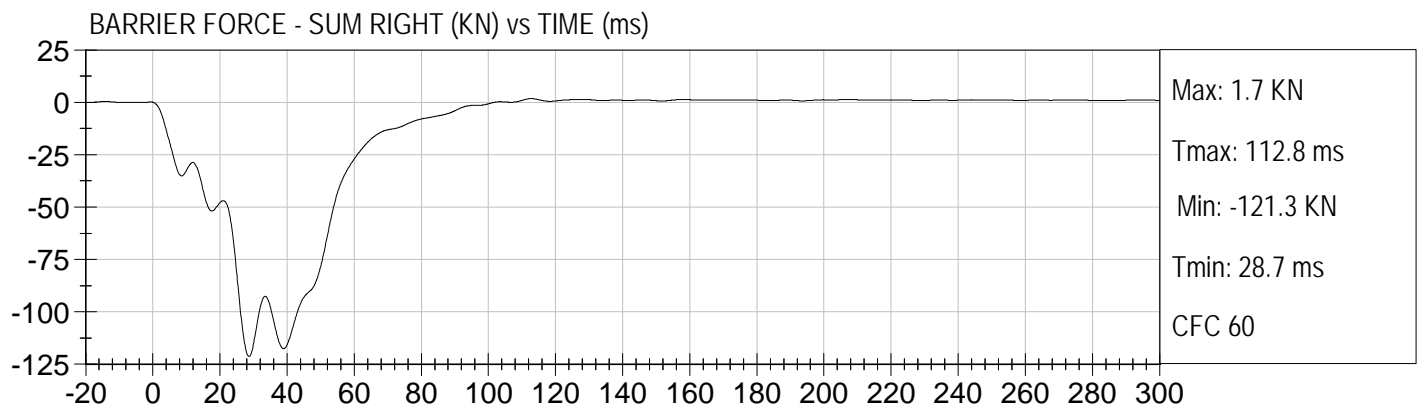
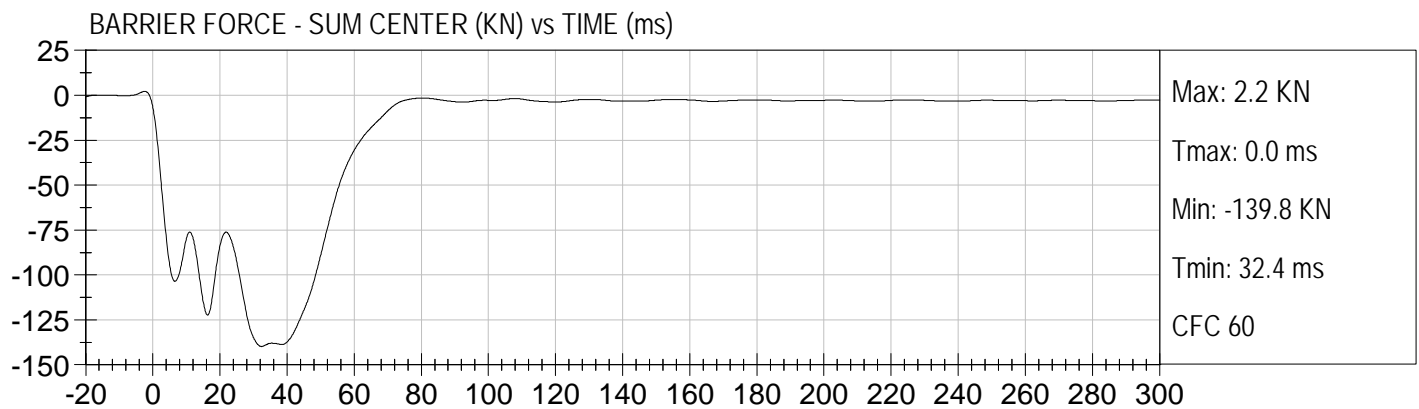
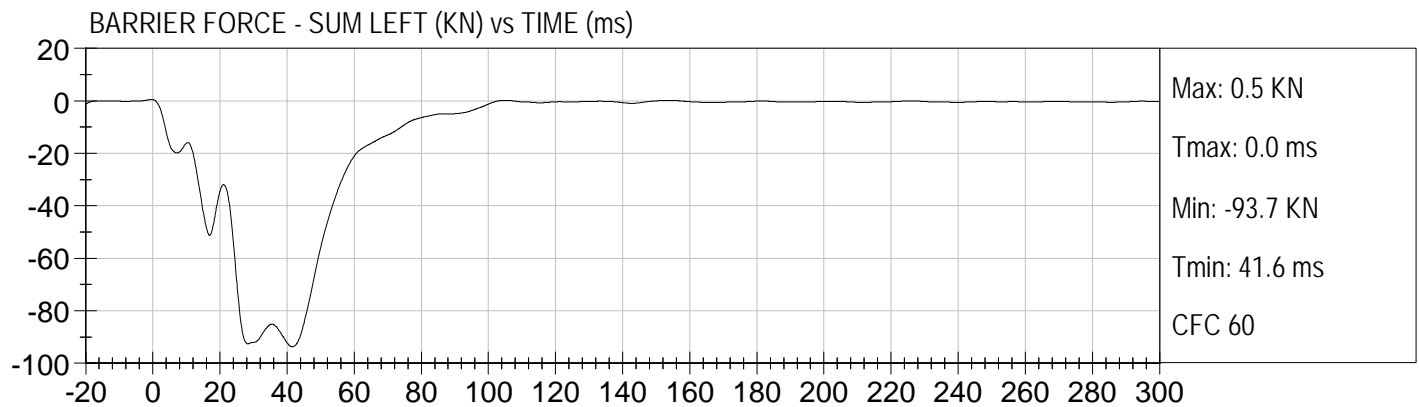
BARRIER FORCE - LOWER RIGHT (KN) vs TIME (ms)





25 MPH FRONTAL UNBELTED  
2008 Smart fortwo (C80511)

Test Date: 05/05/2008  
Speed: 24.8 mph (39.9 km/h)





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**LOW RISK TEST DATA**

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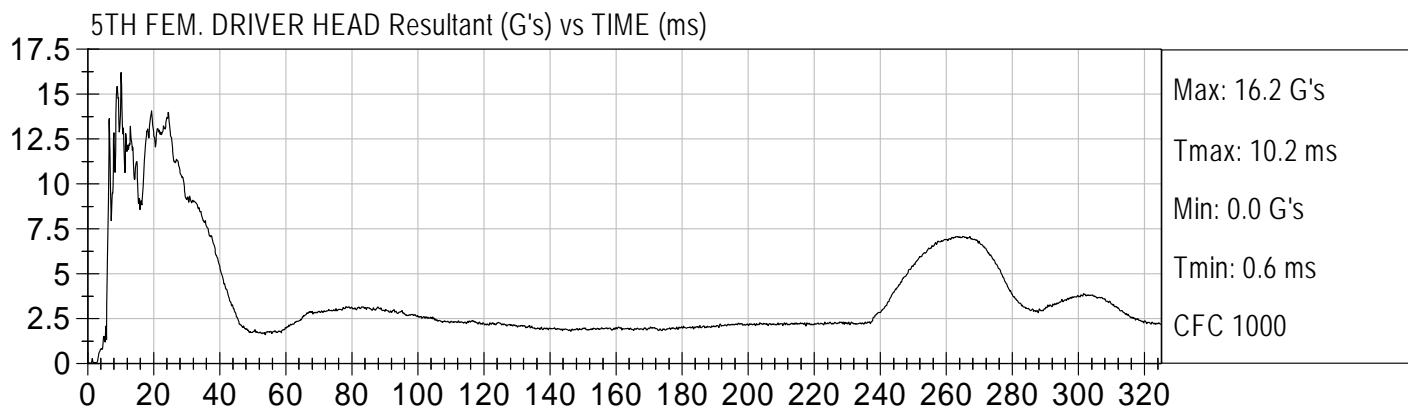
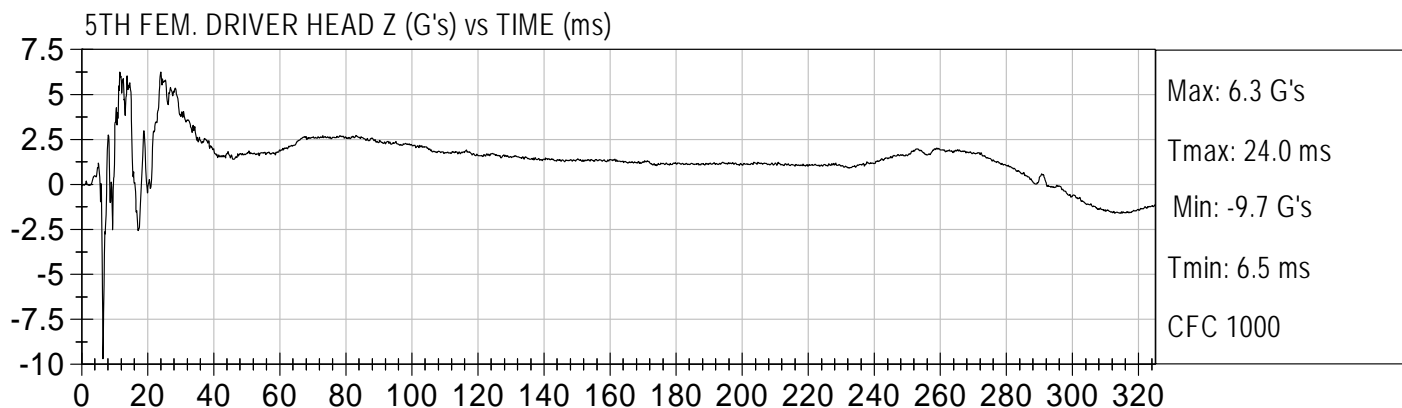
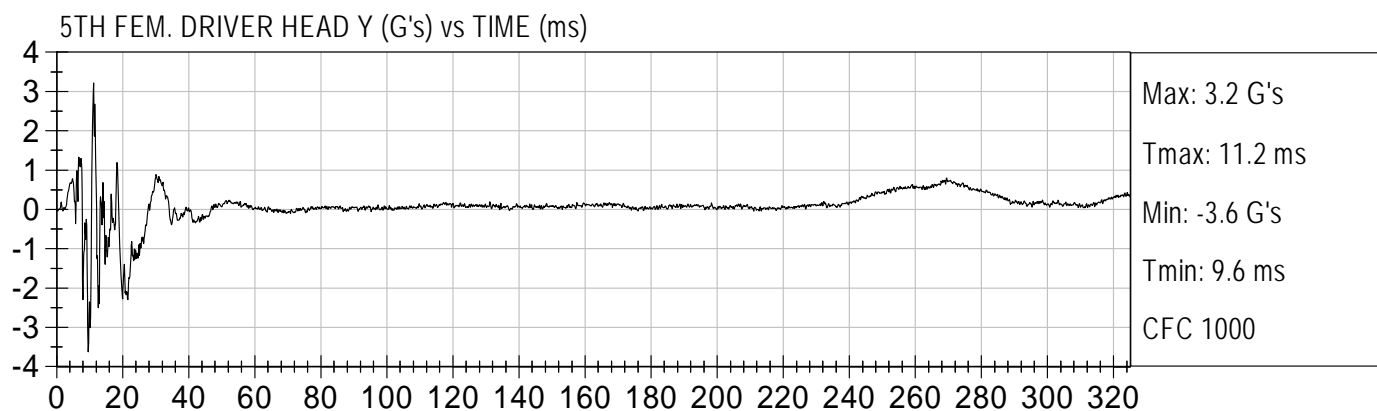
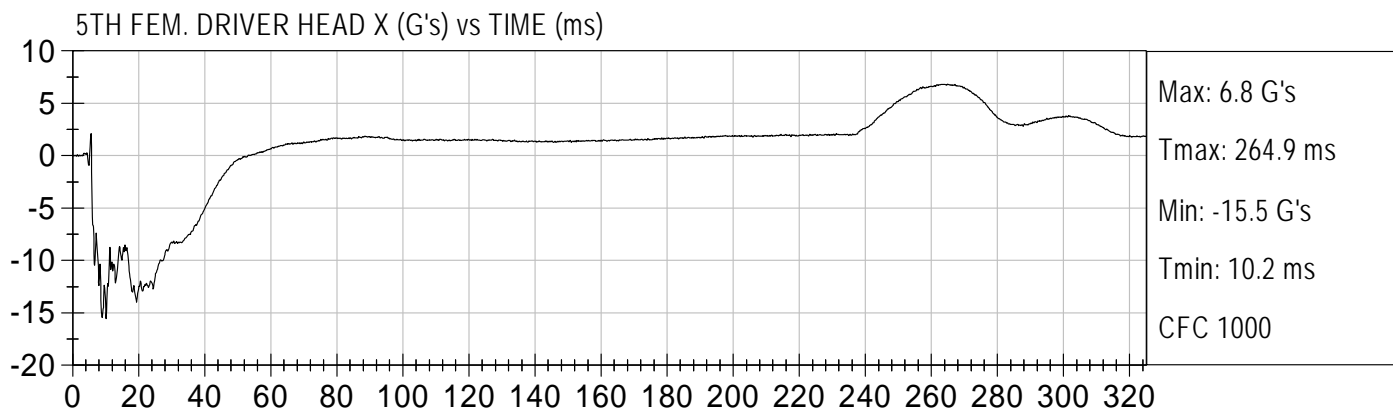
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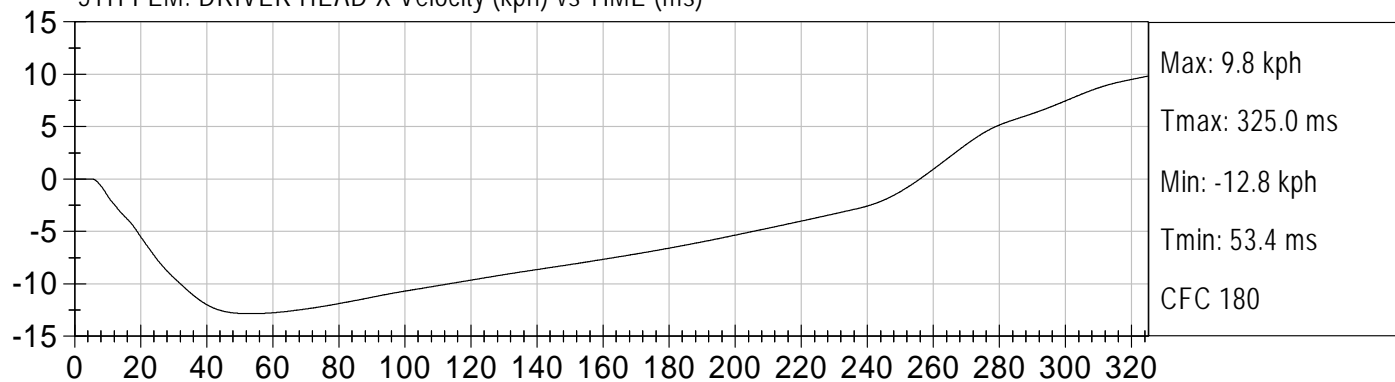
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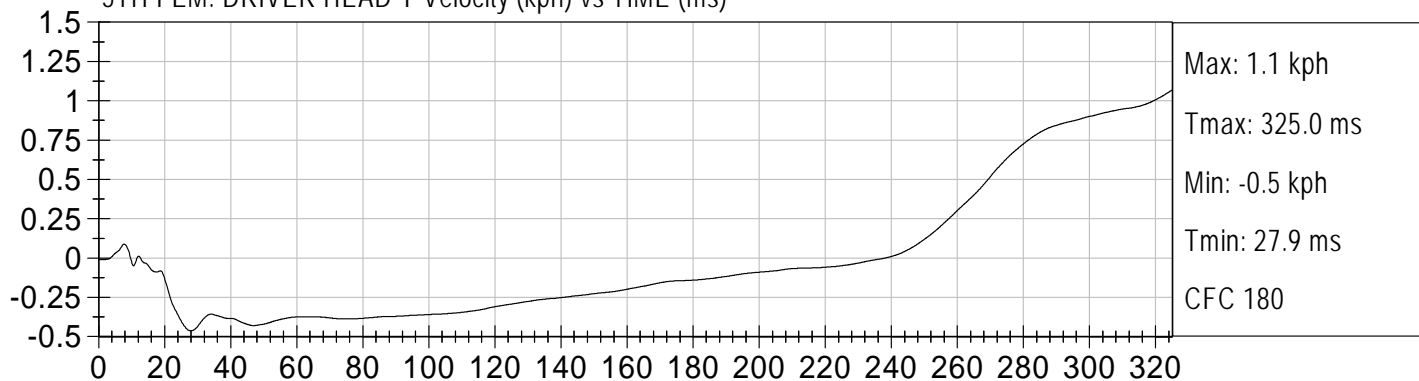




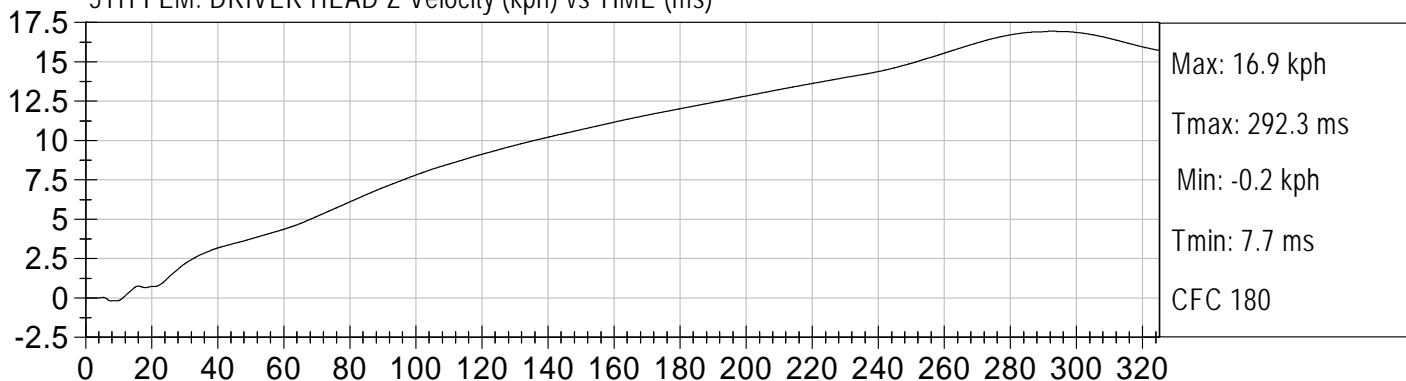
5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)

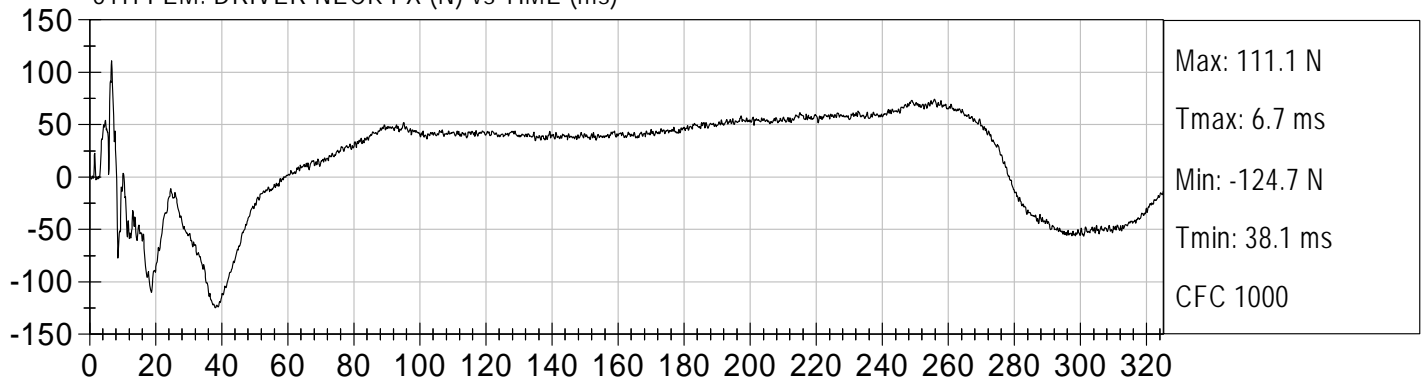


5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)

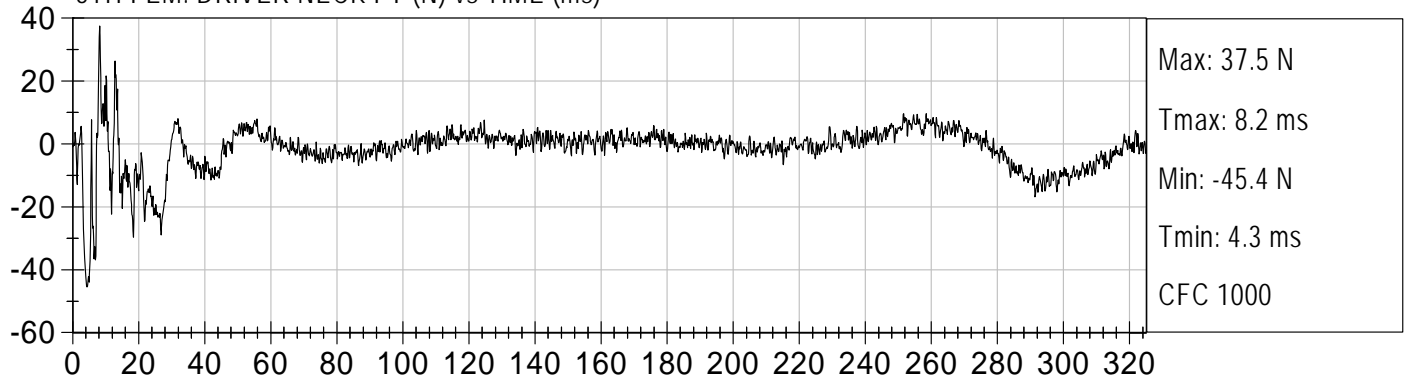




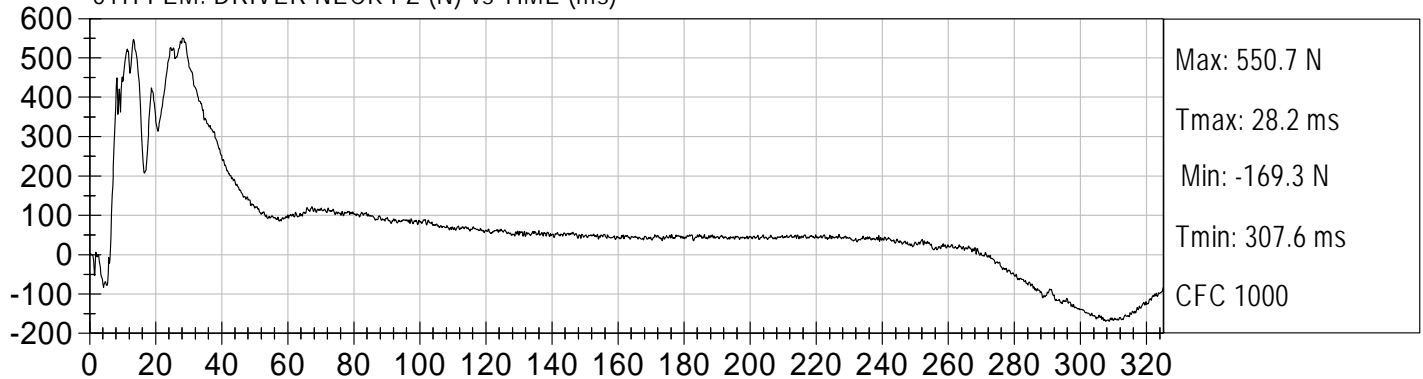
5TH FEM. DRIVER NECK FX (N) vs TIME (ms)



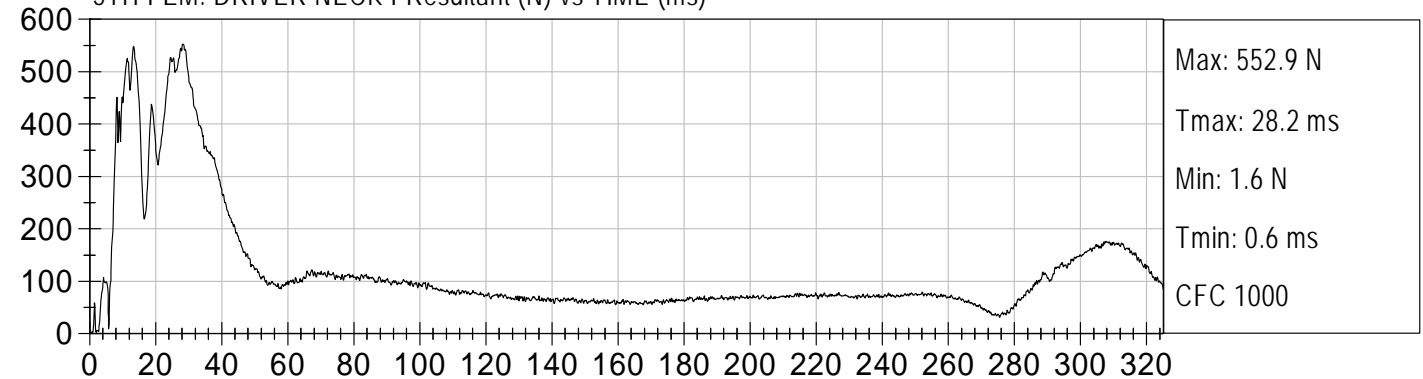
5TH FEM. DRIVER NECK FY (N) vs TIME (ms)



5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)

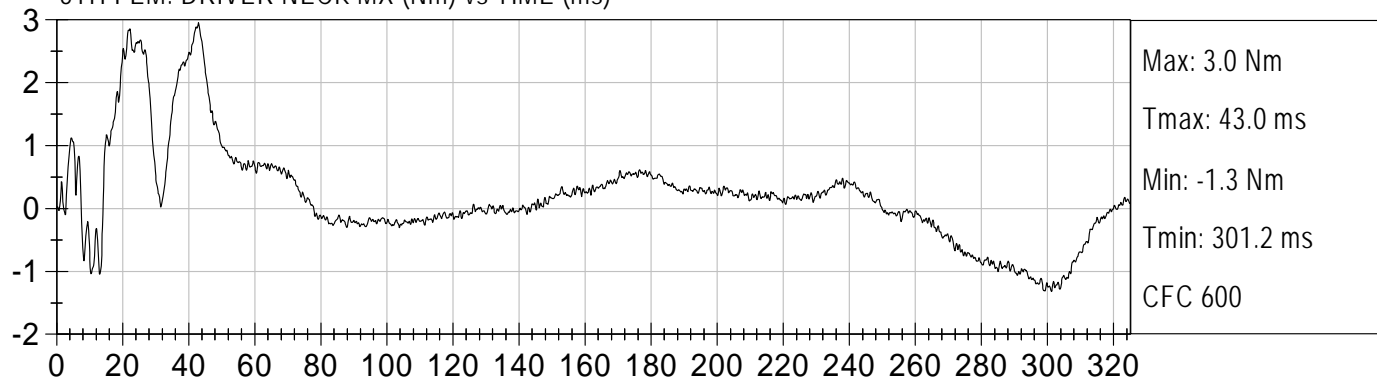


5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)

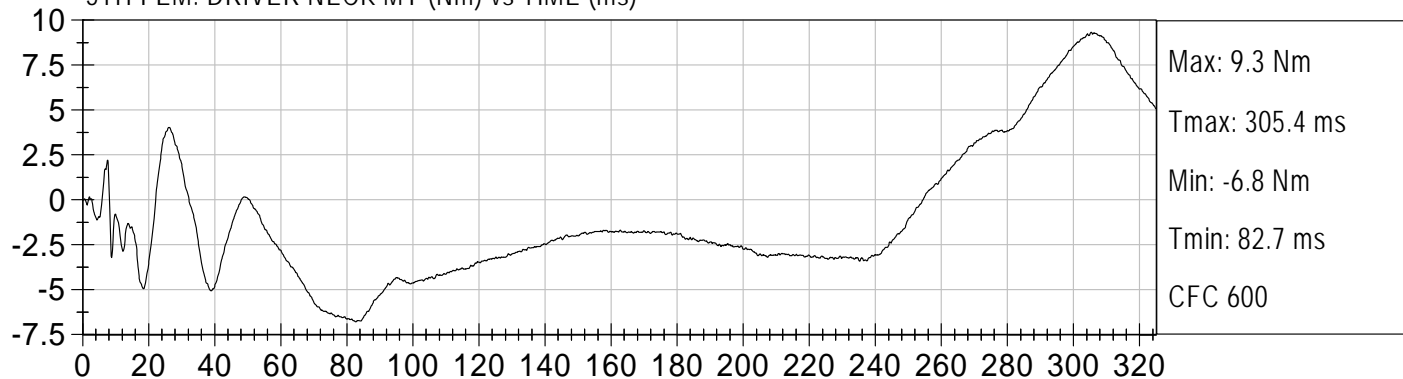




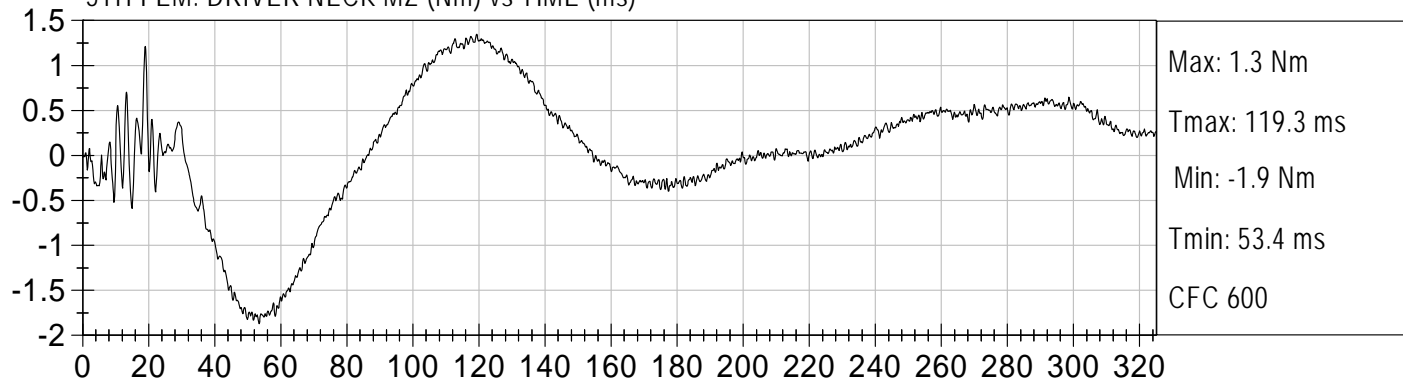
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



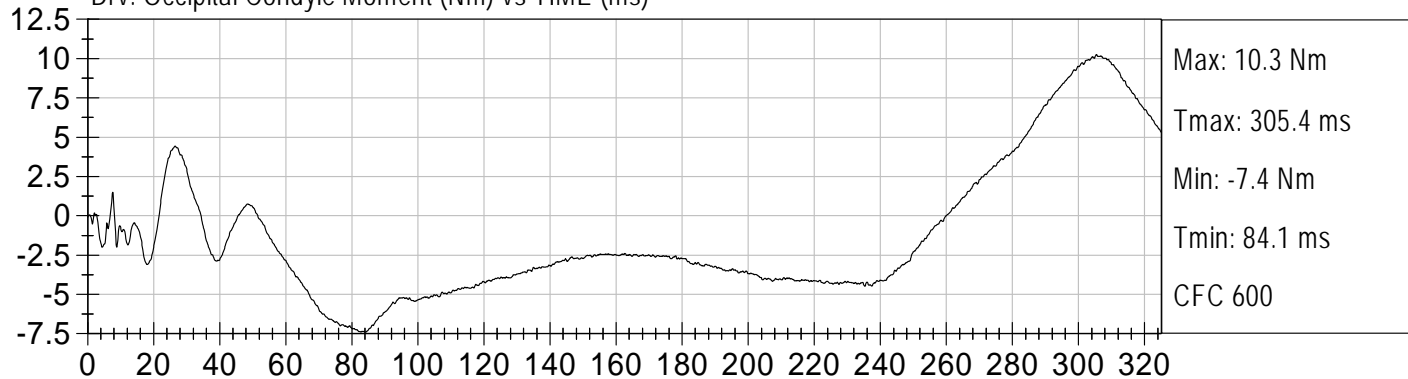
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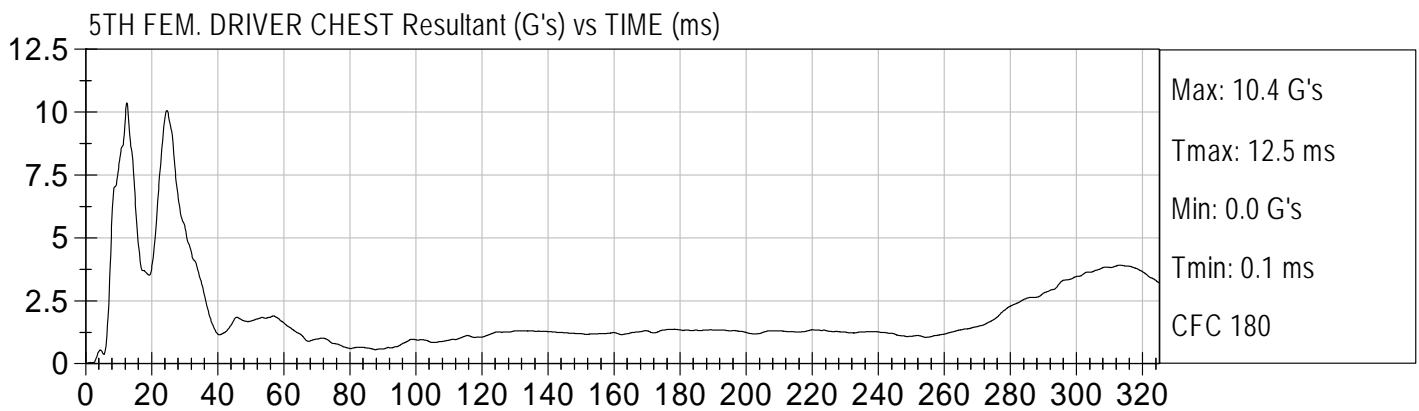
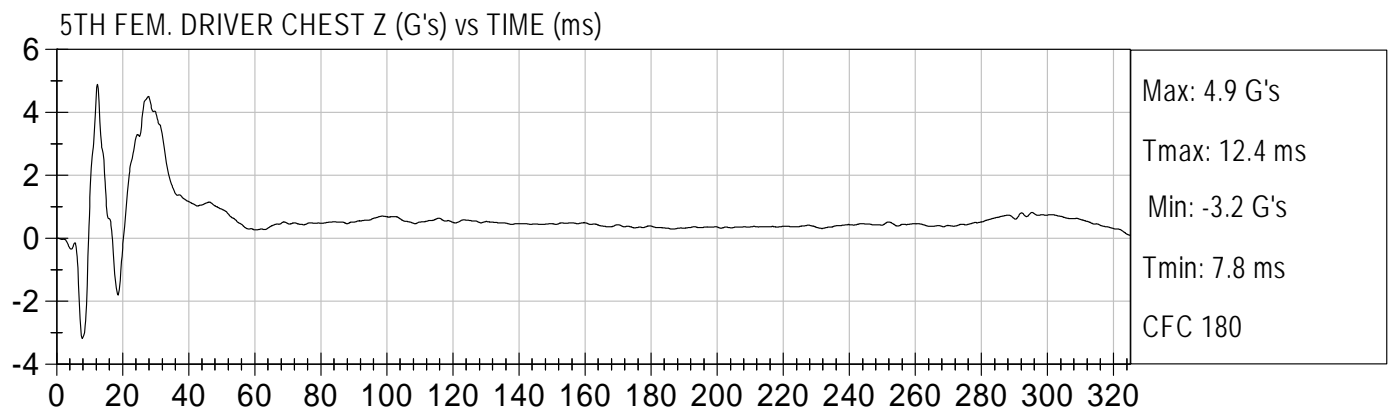
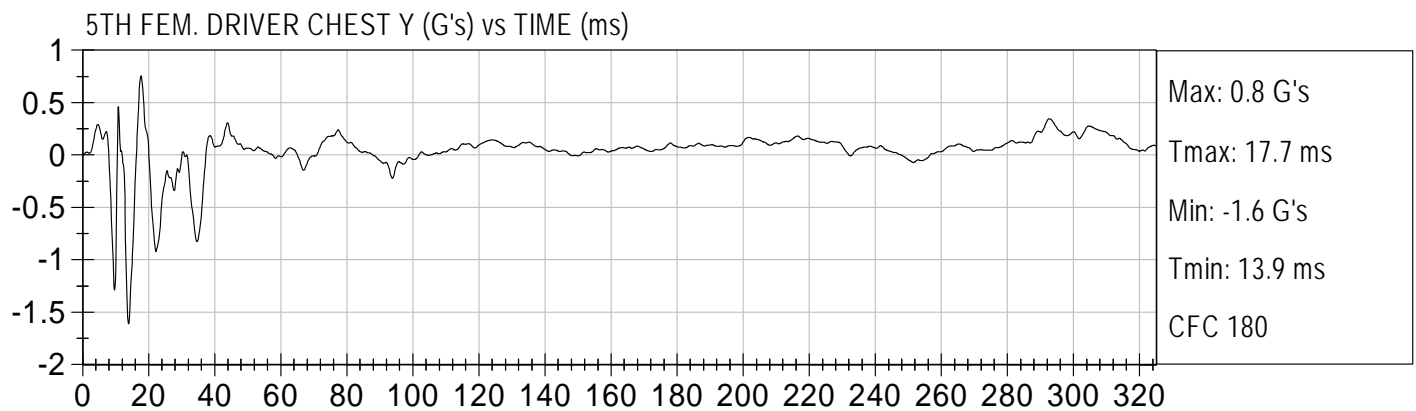
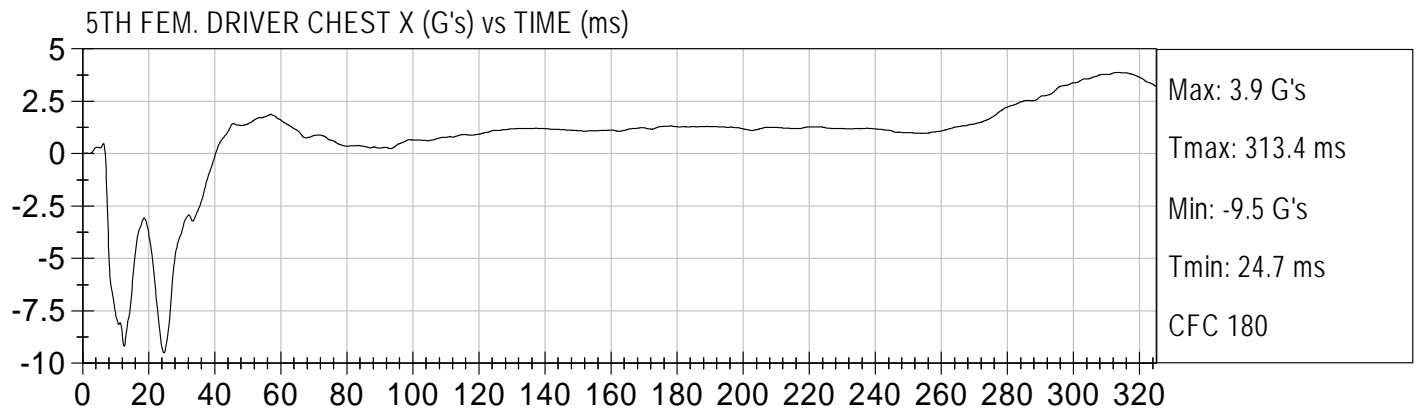


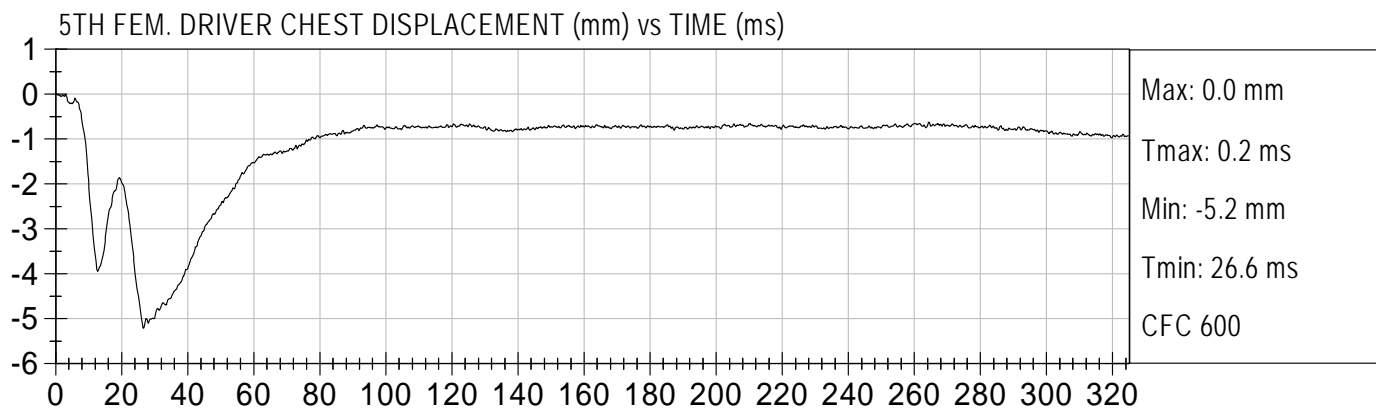
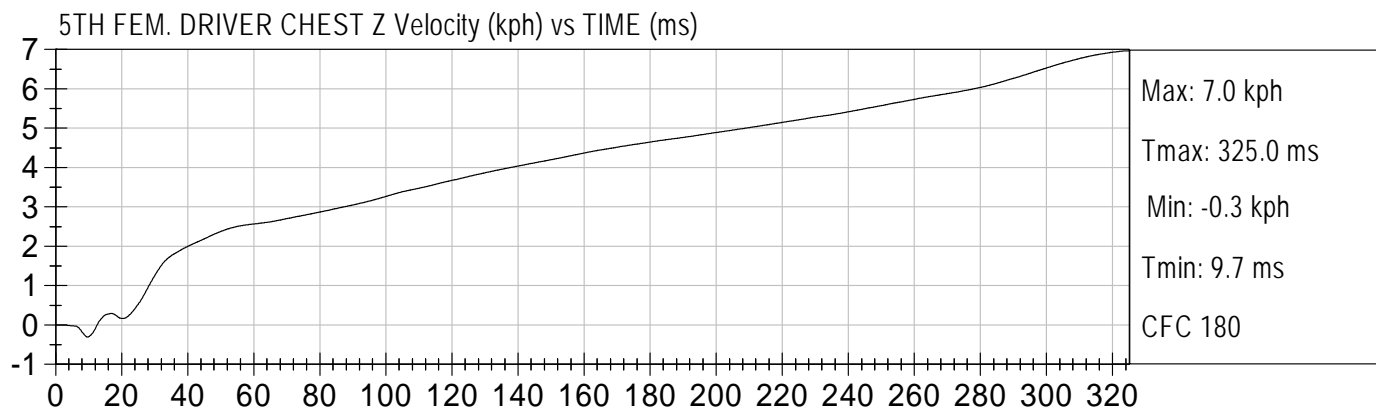
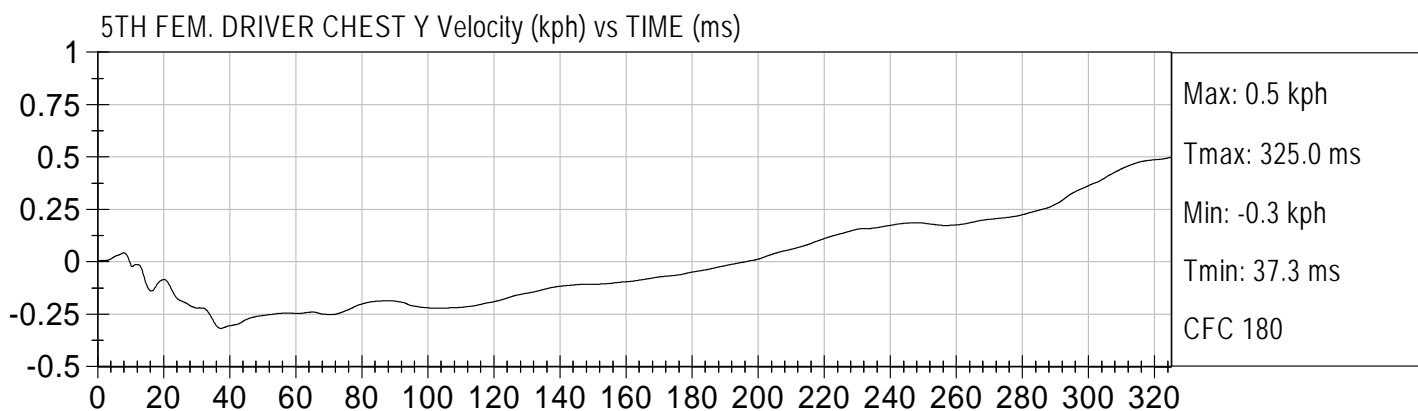
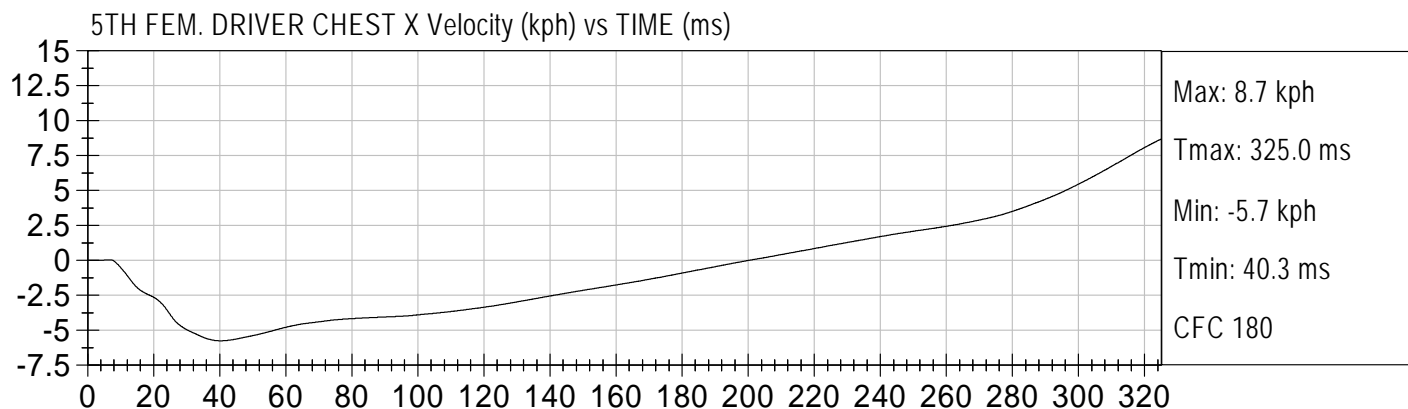
5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)

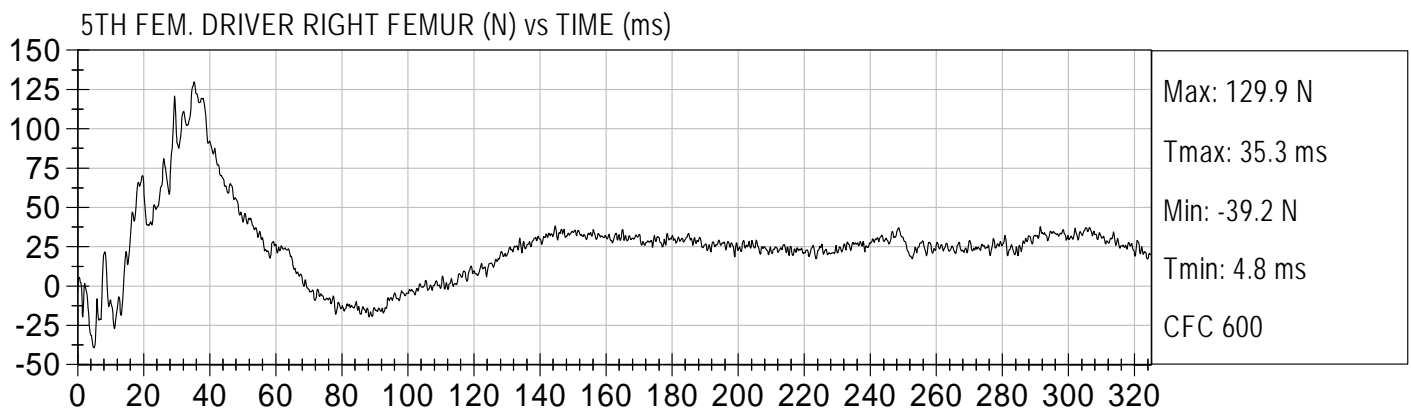
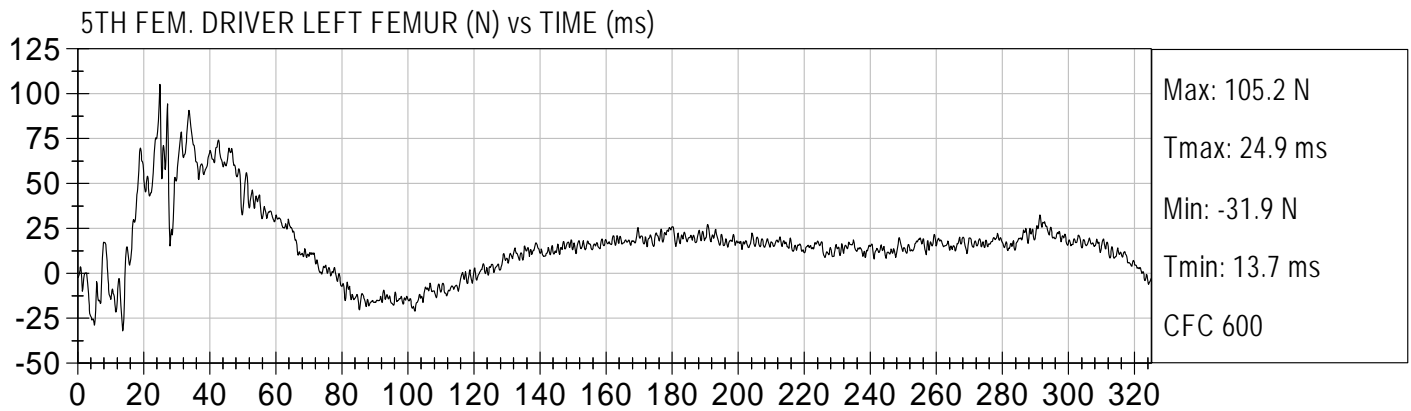


Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



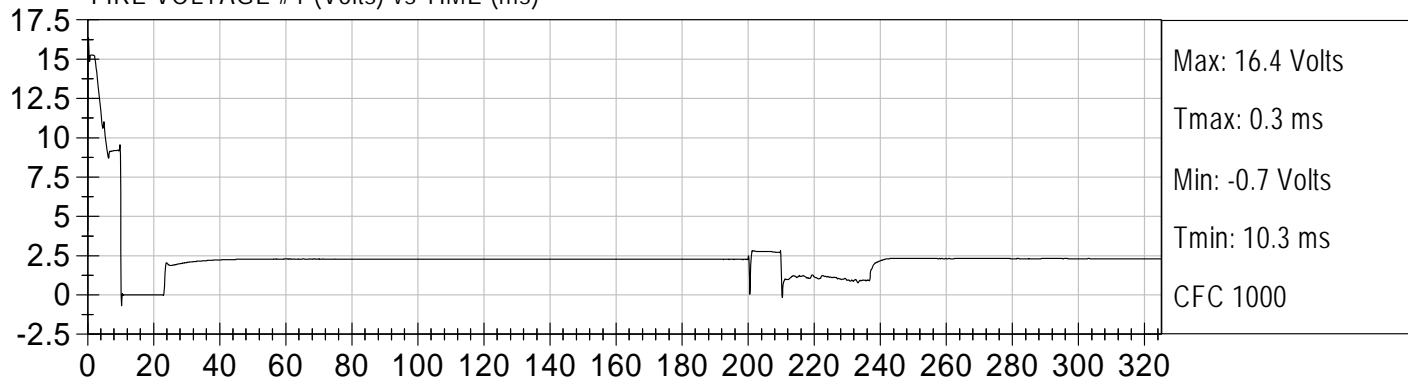




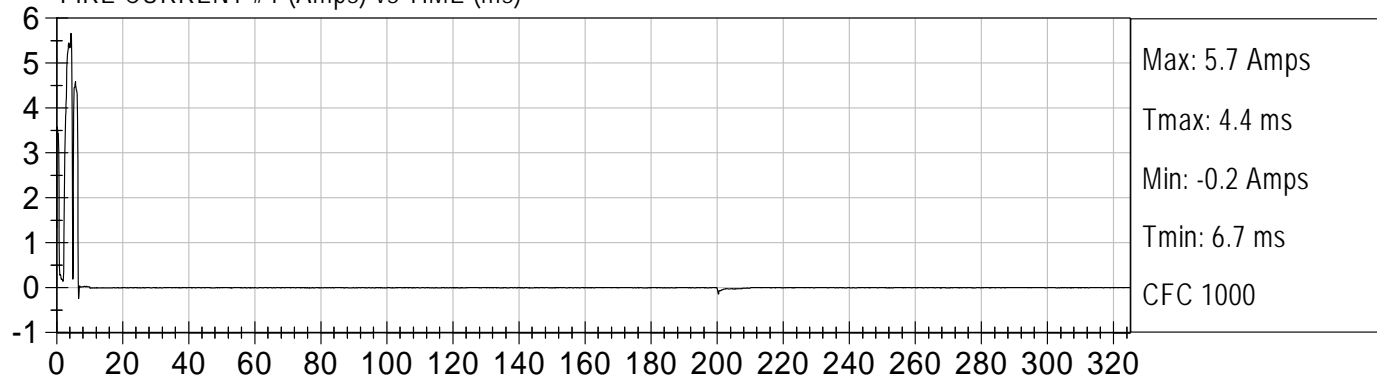




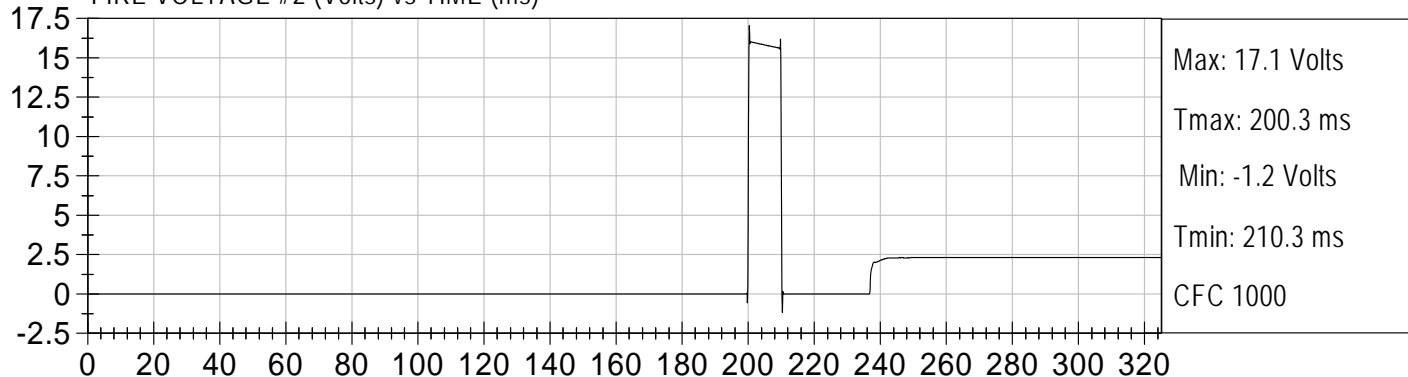
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



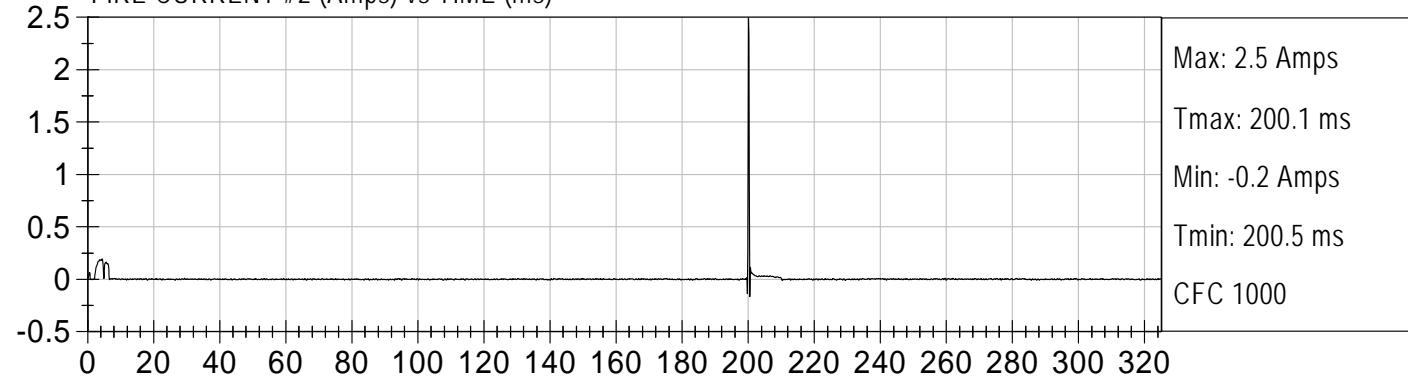
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)



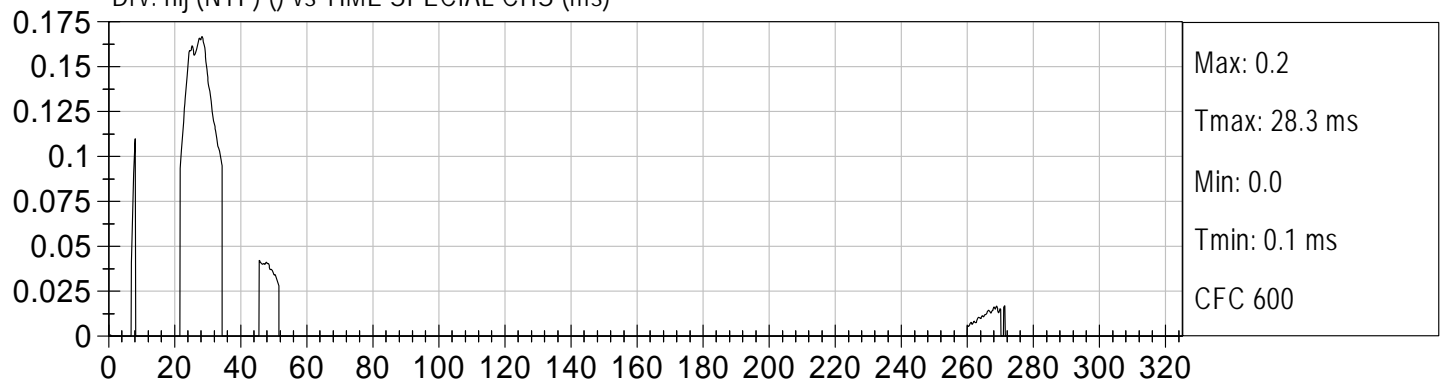
FIRE CURRENT #2 (Amps) vs TIME (ms)



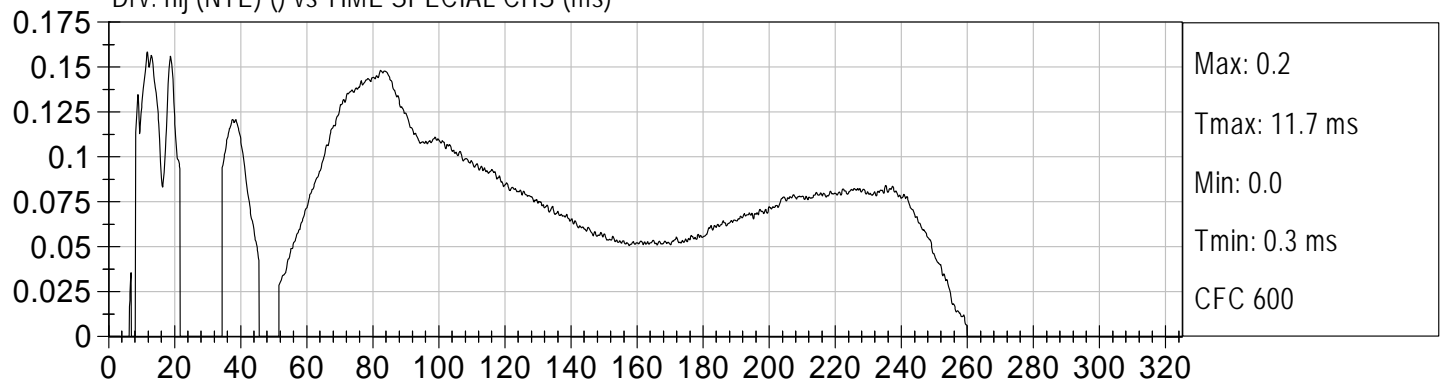




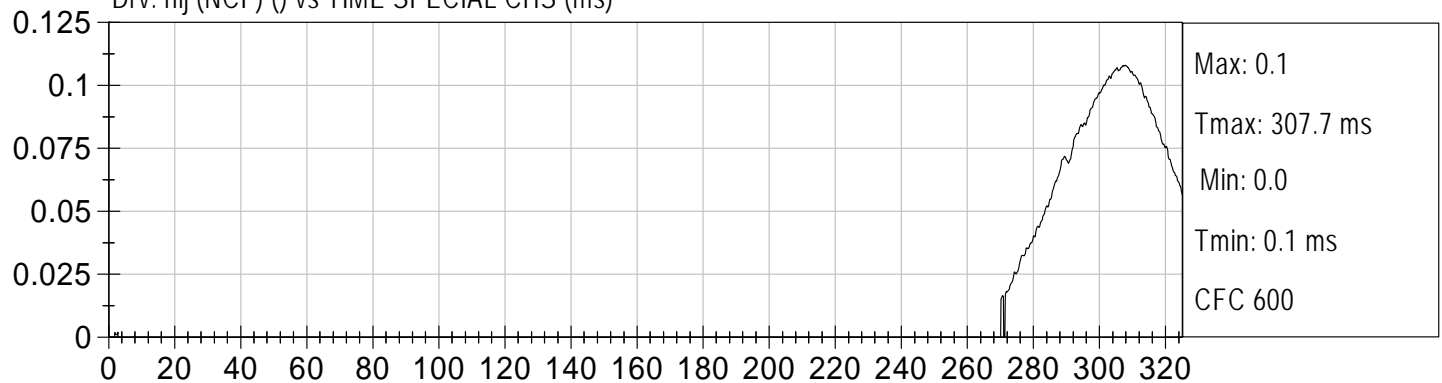
Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)



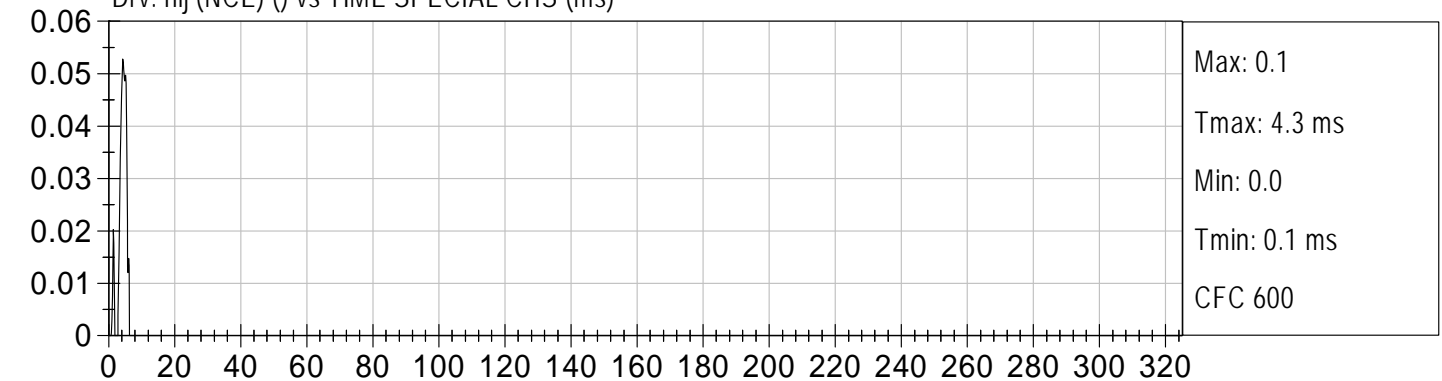
Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)

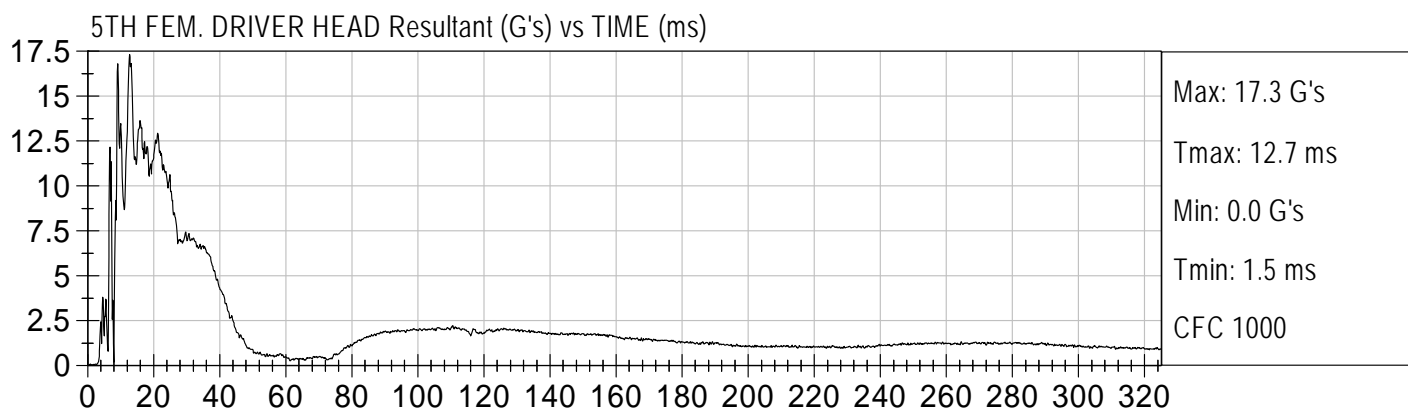
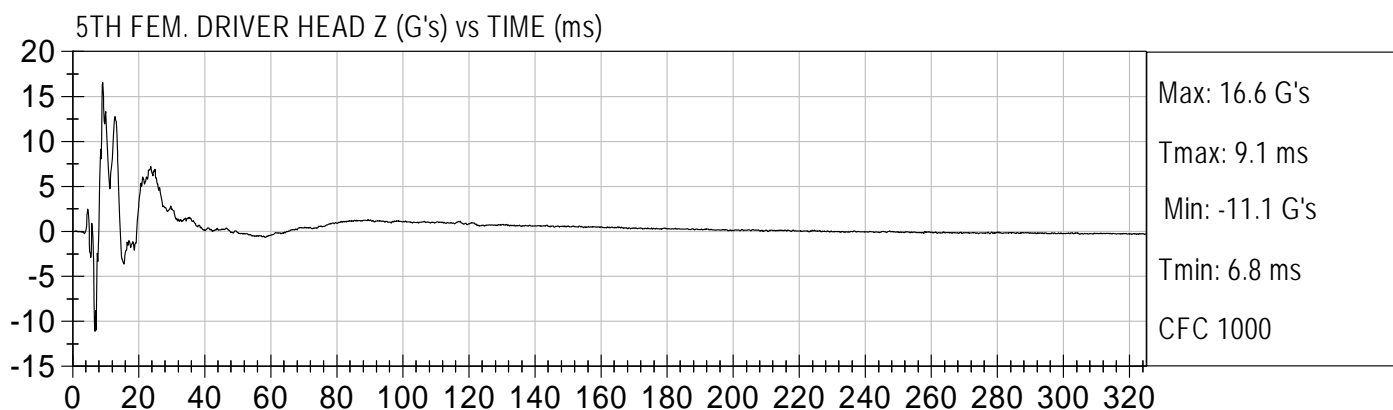
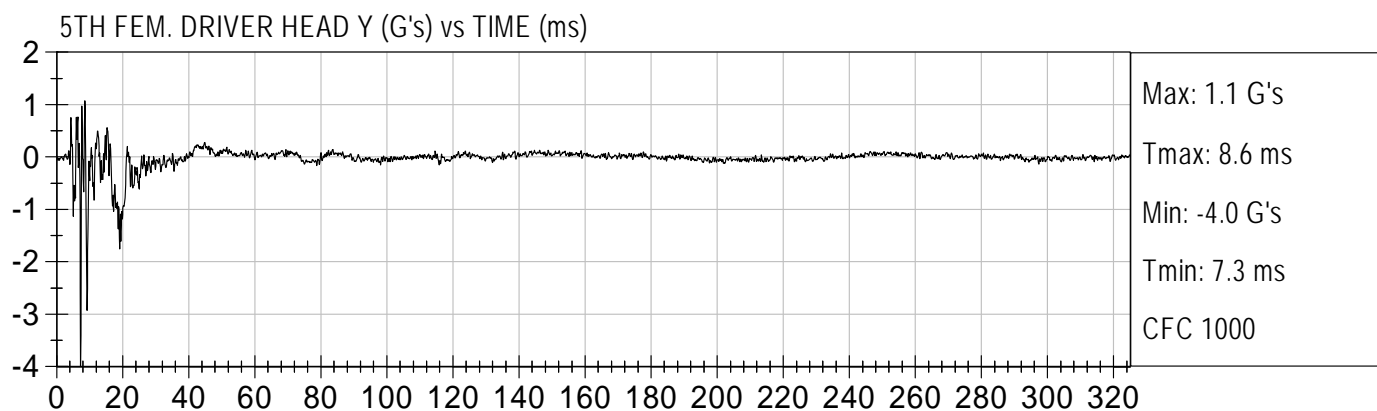
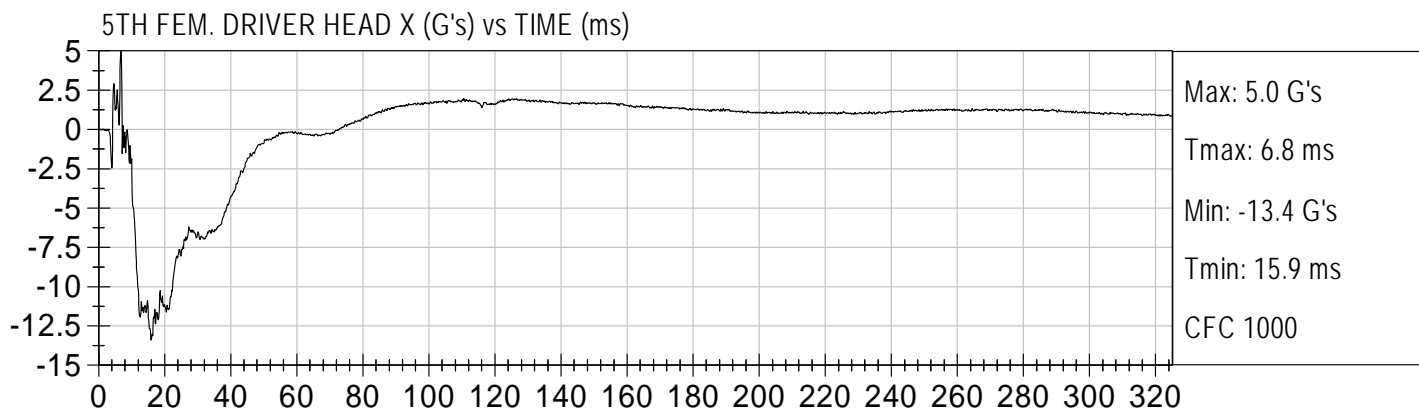


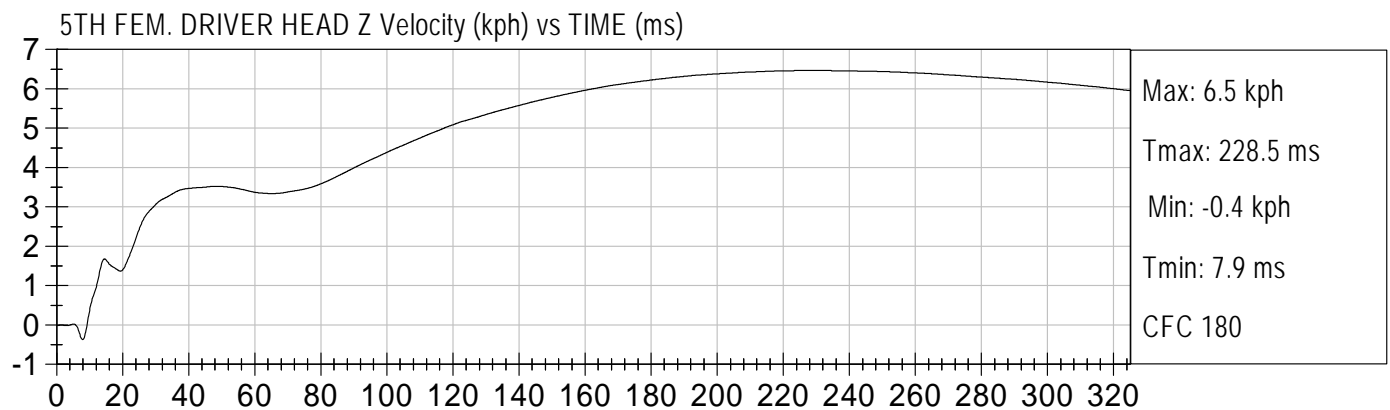
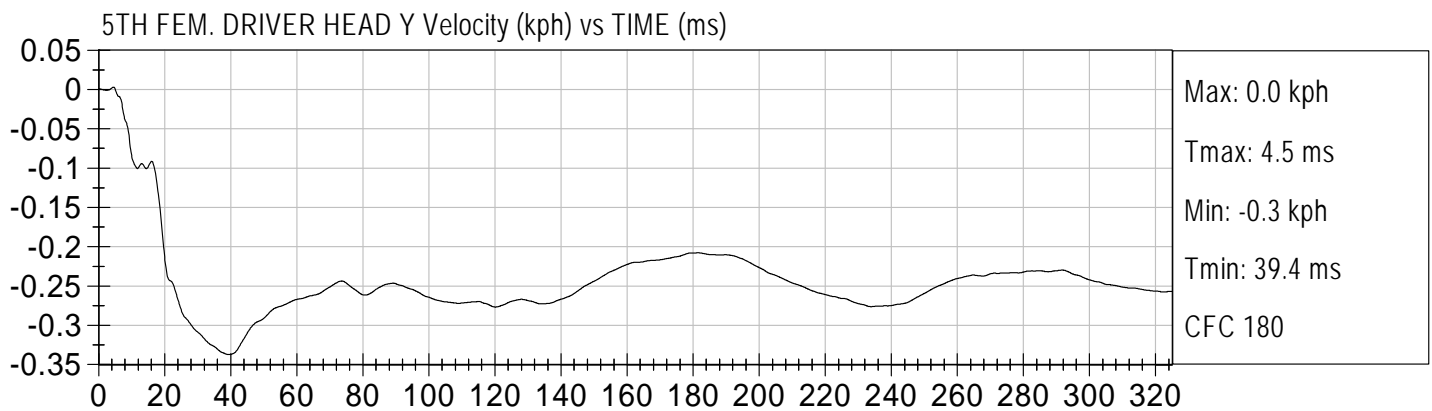
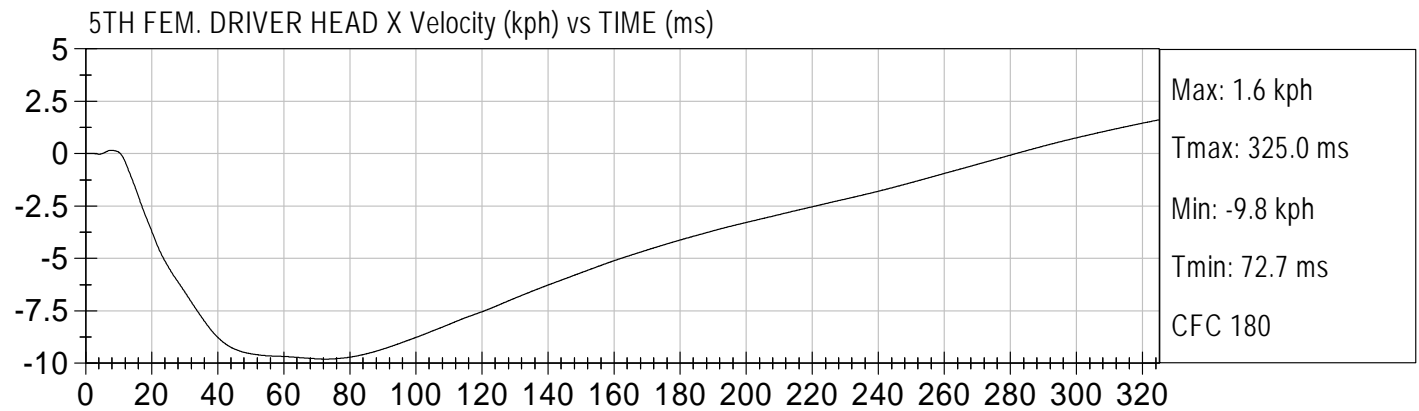
Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)

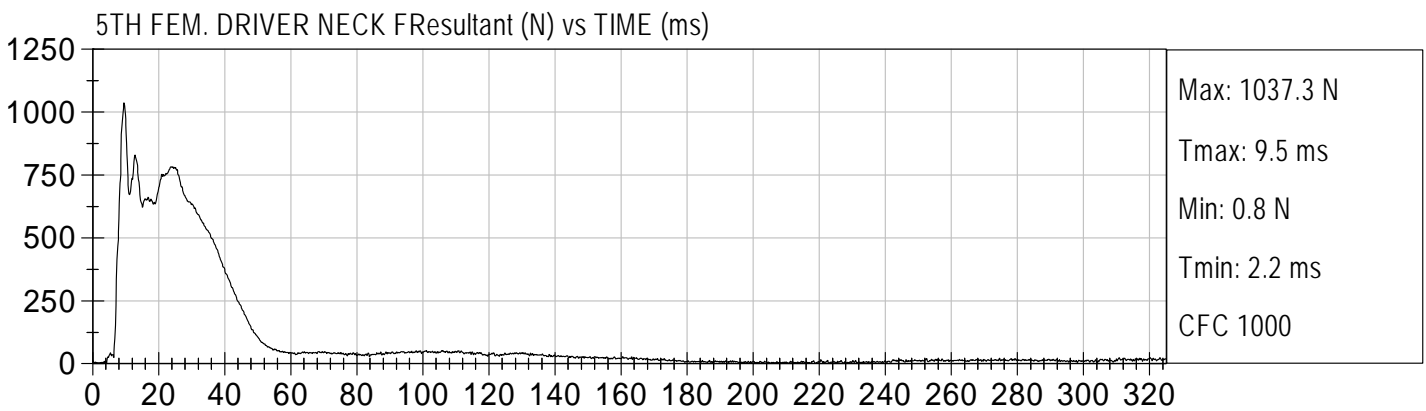
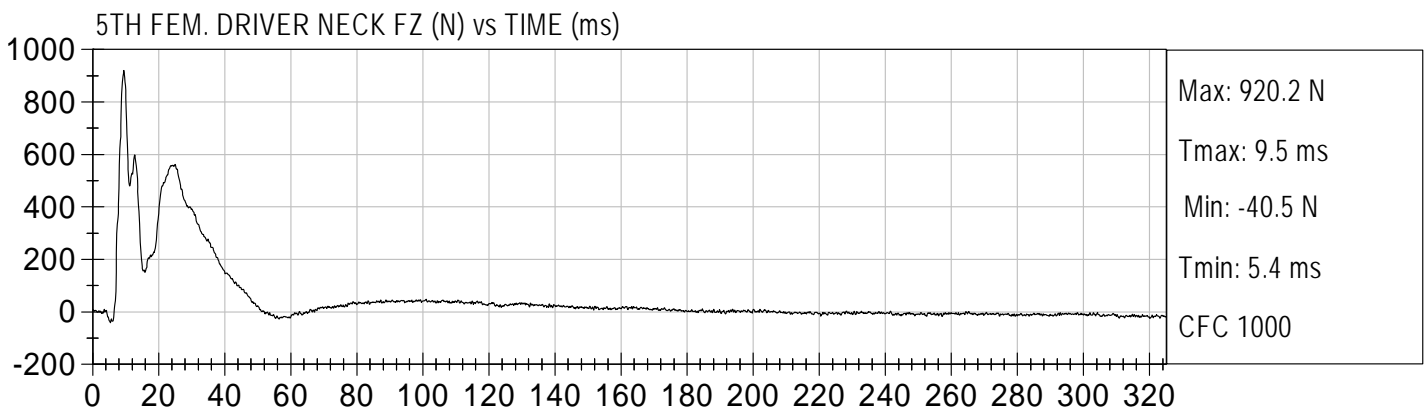
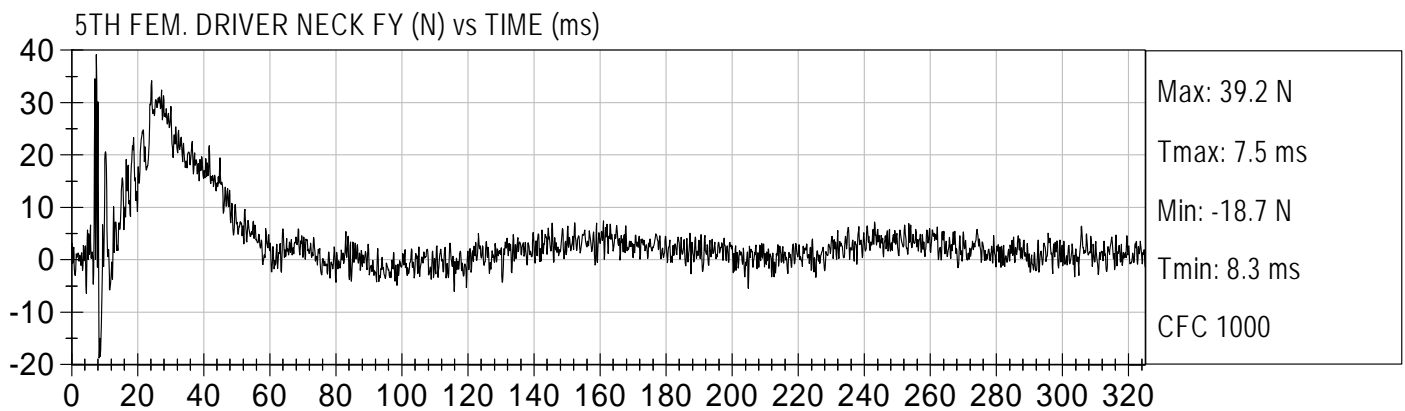
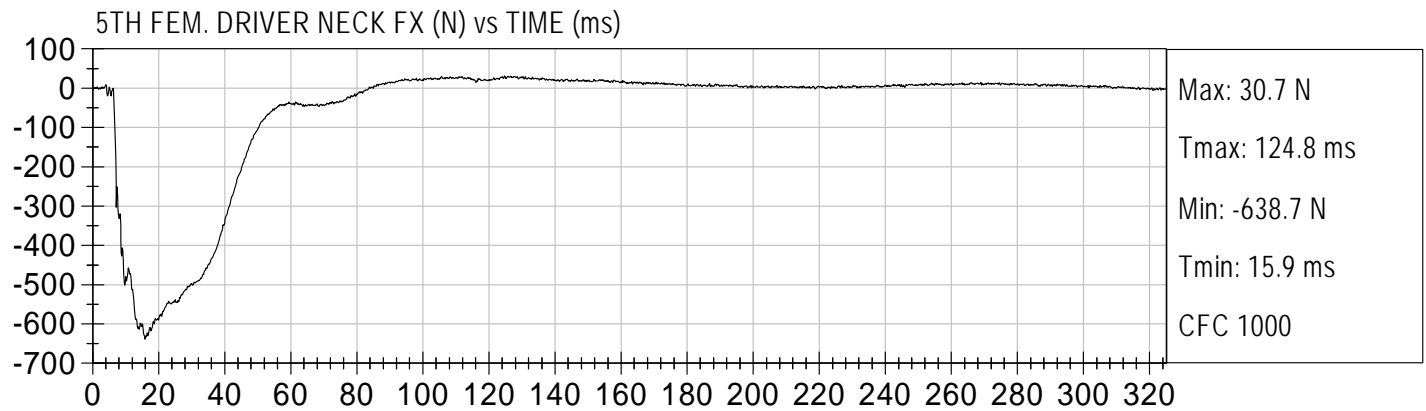


Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)



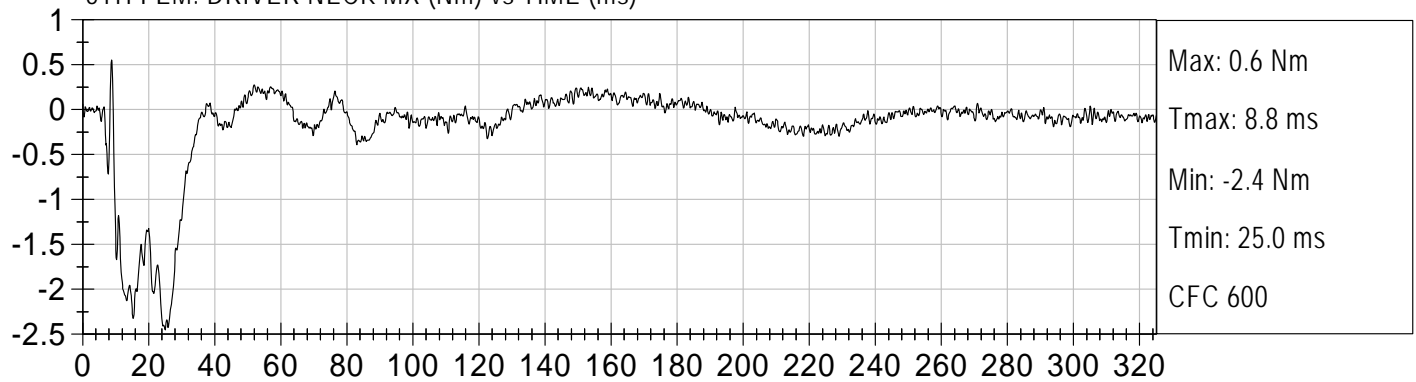




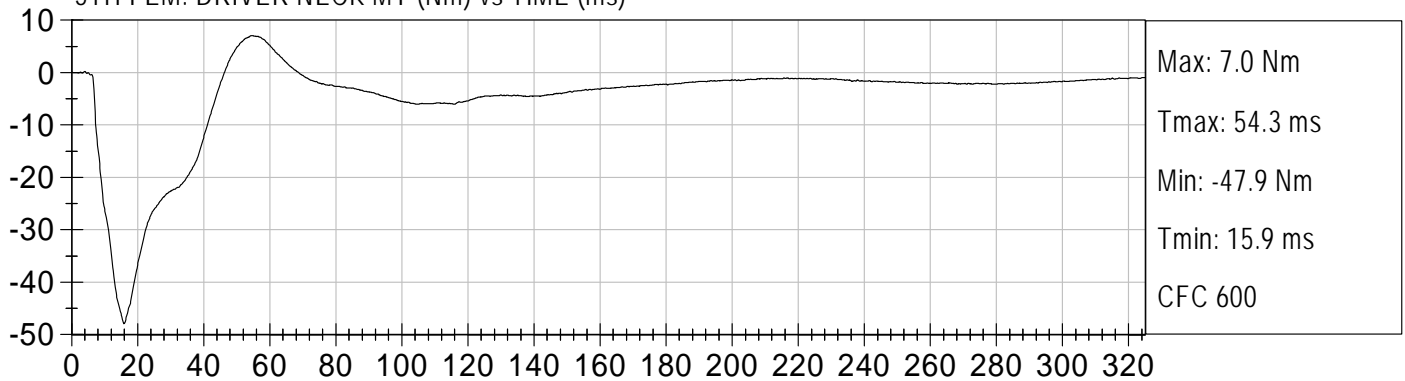




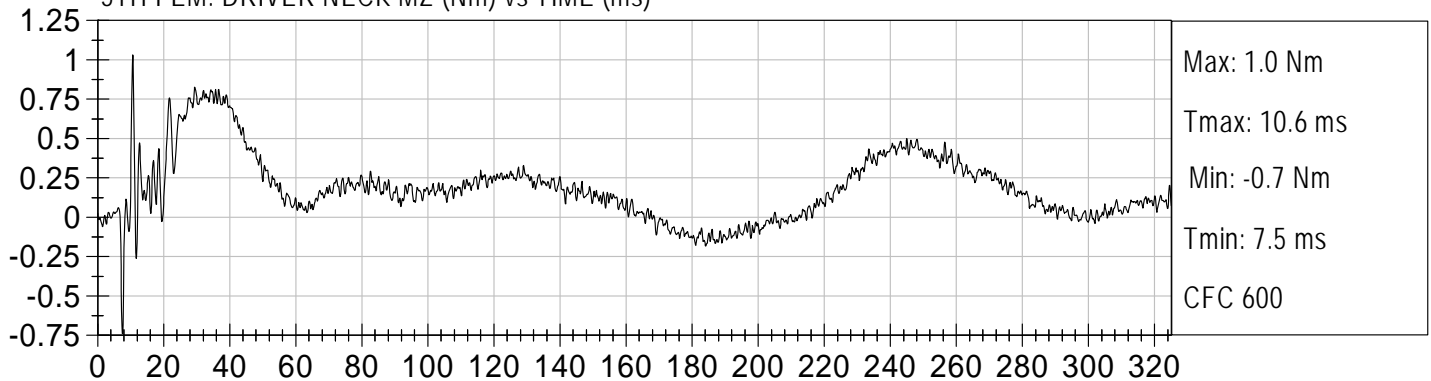
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



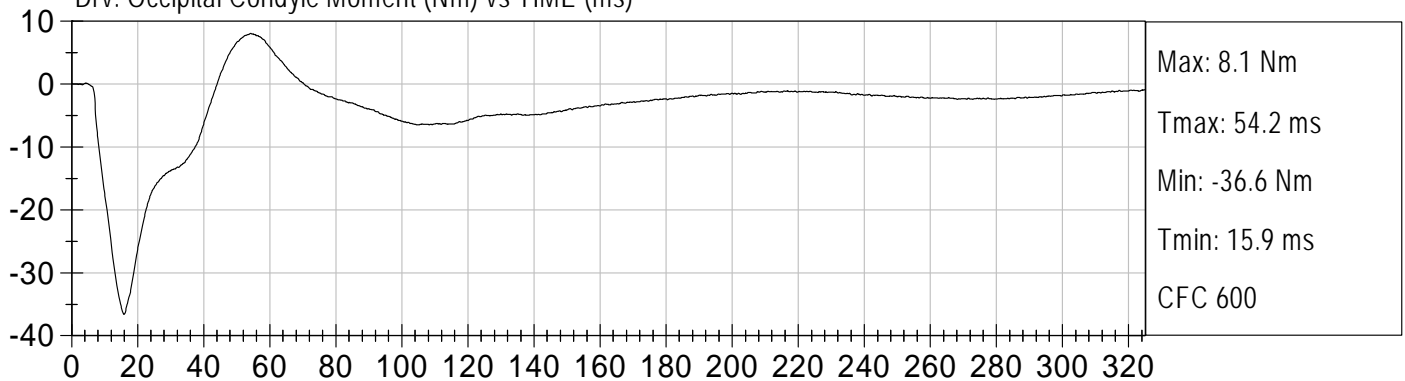
5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)

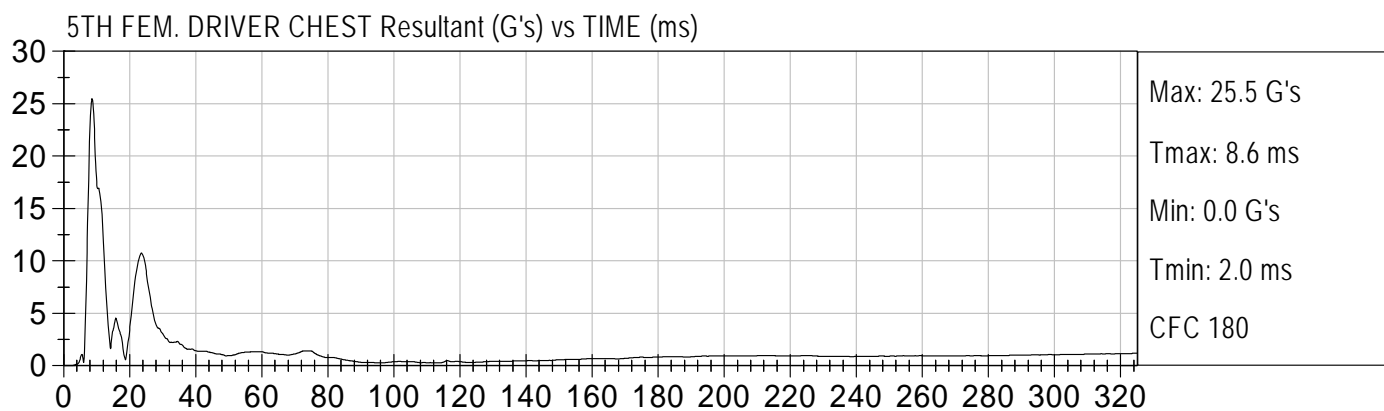
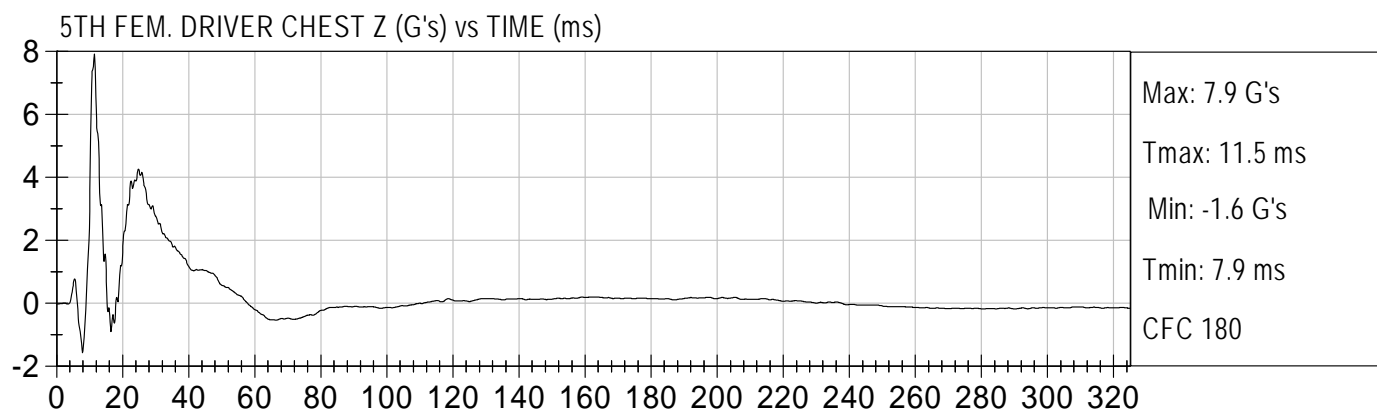
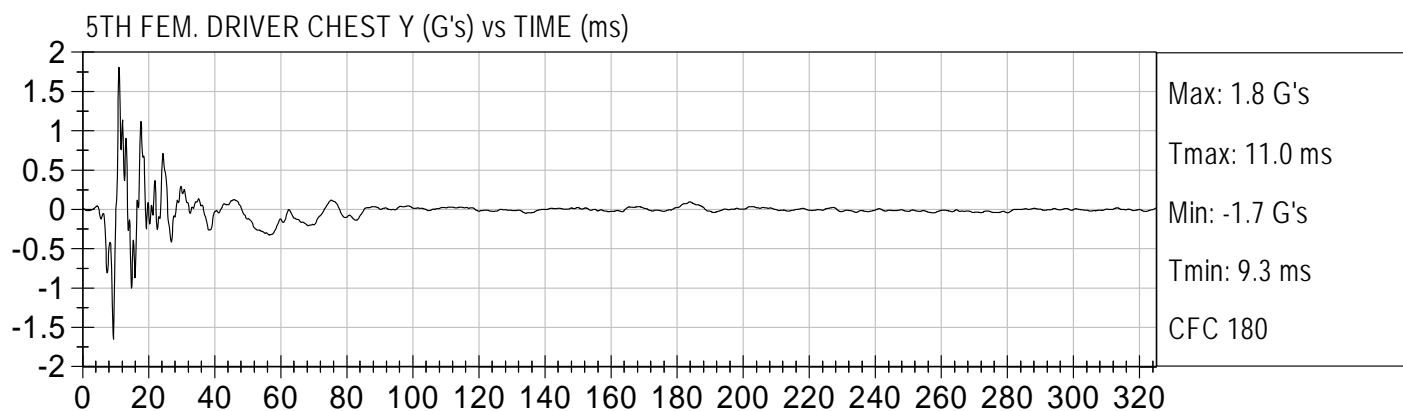
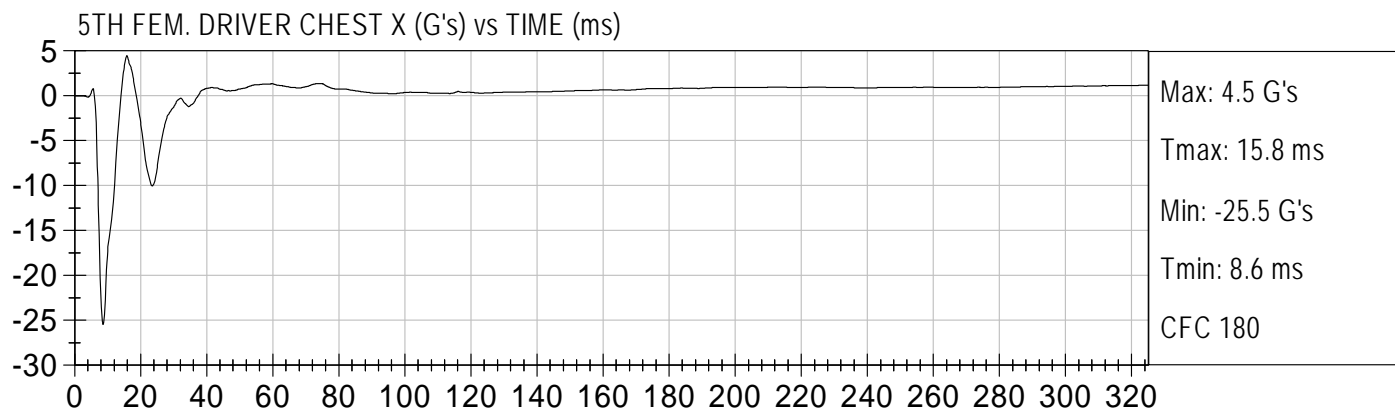


5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



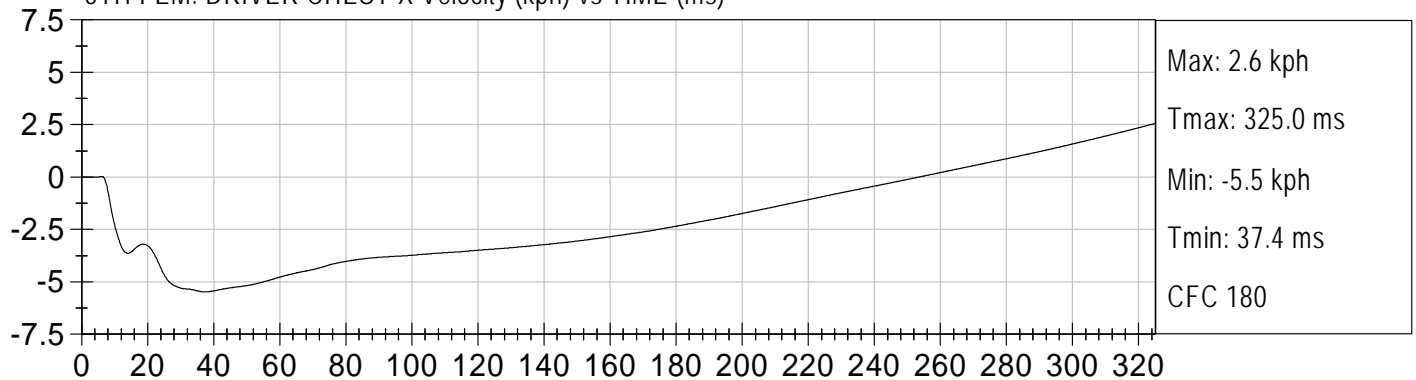
Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



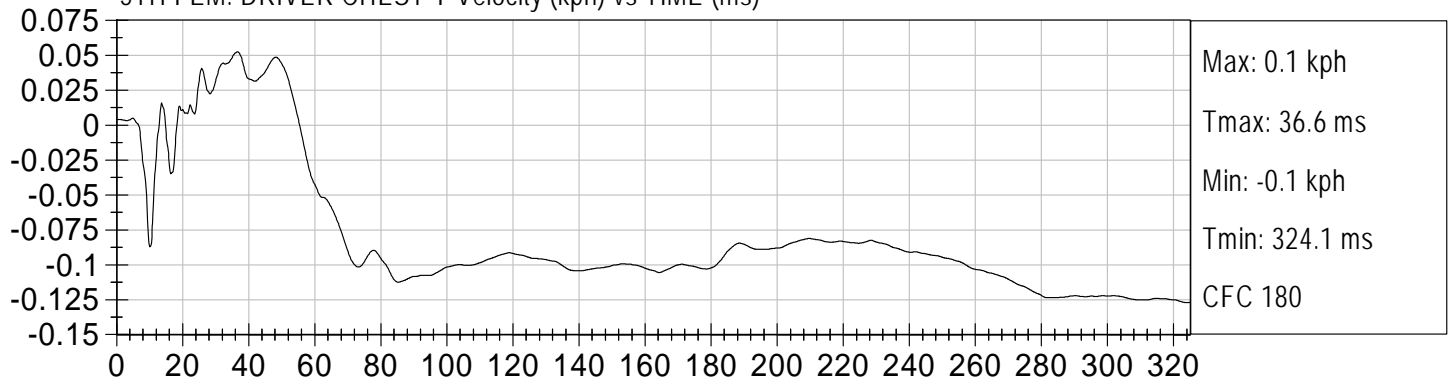




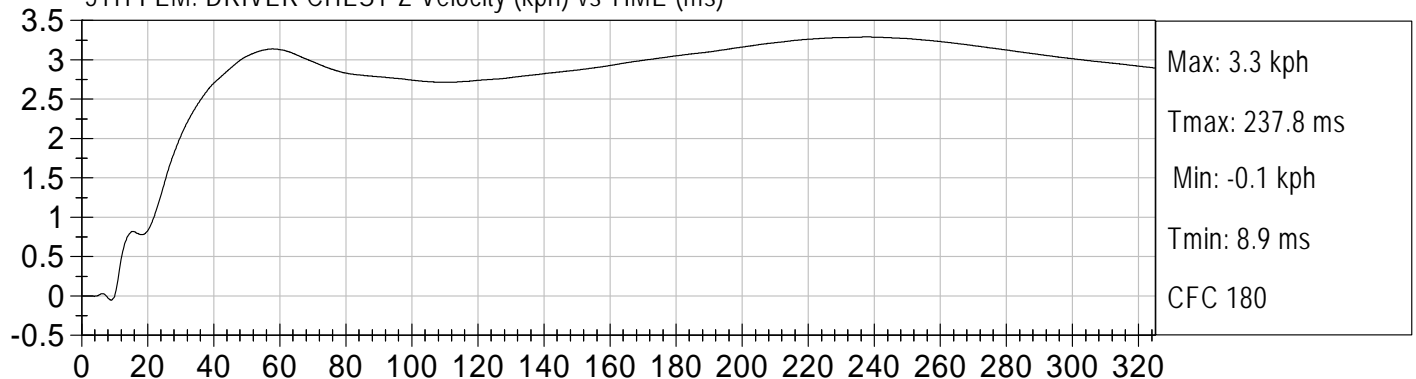
5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)



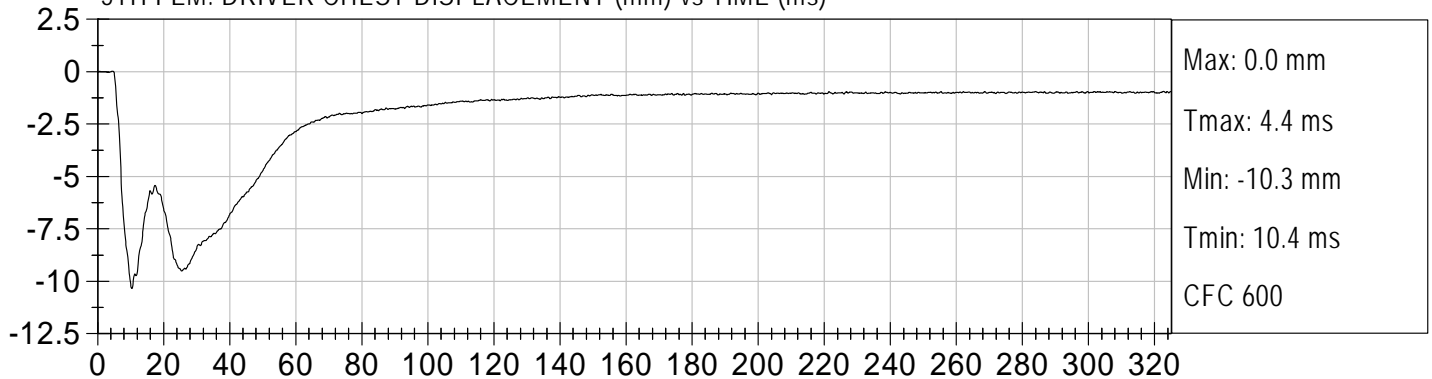
5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)

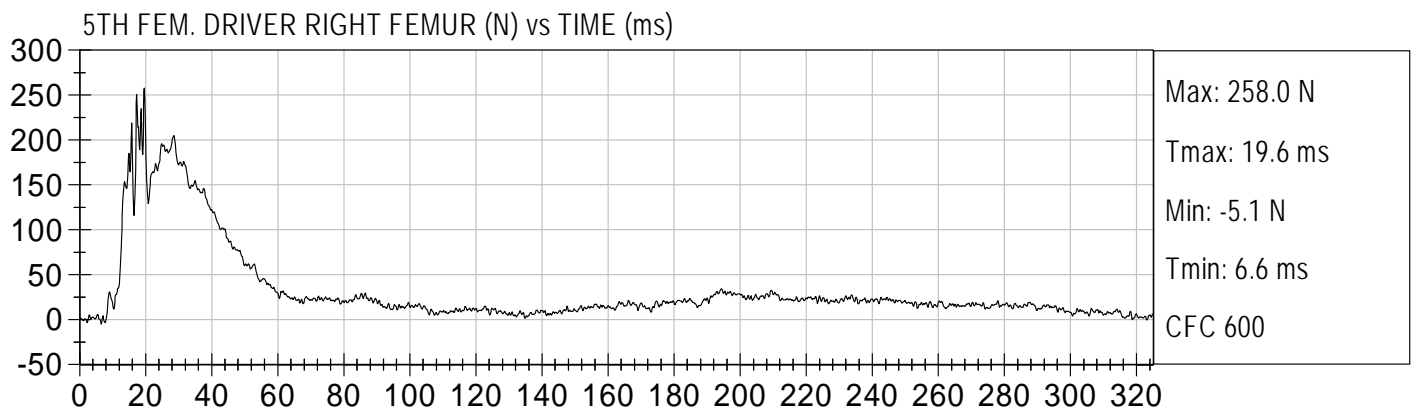
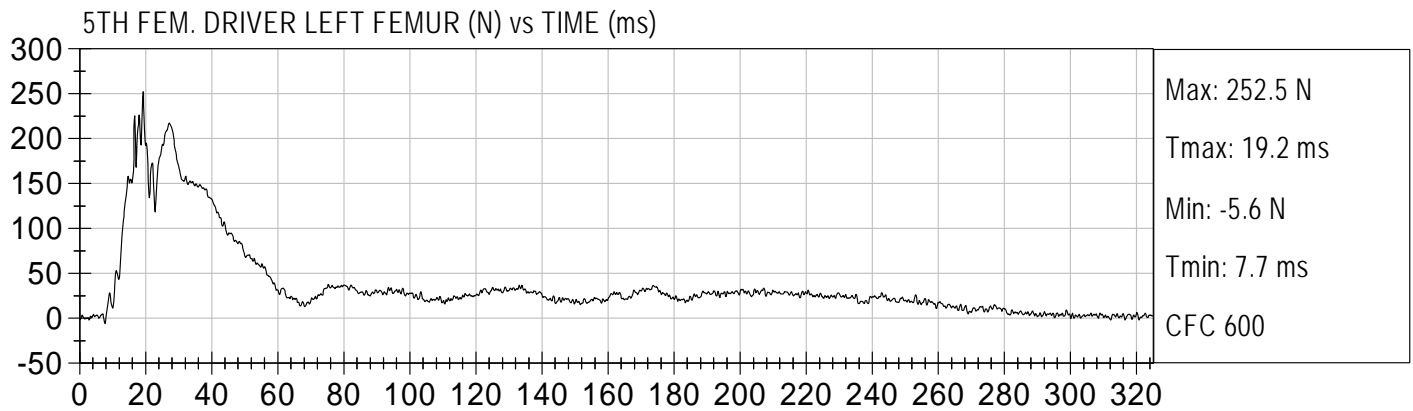


5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)

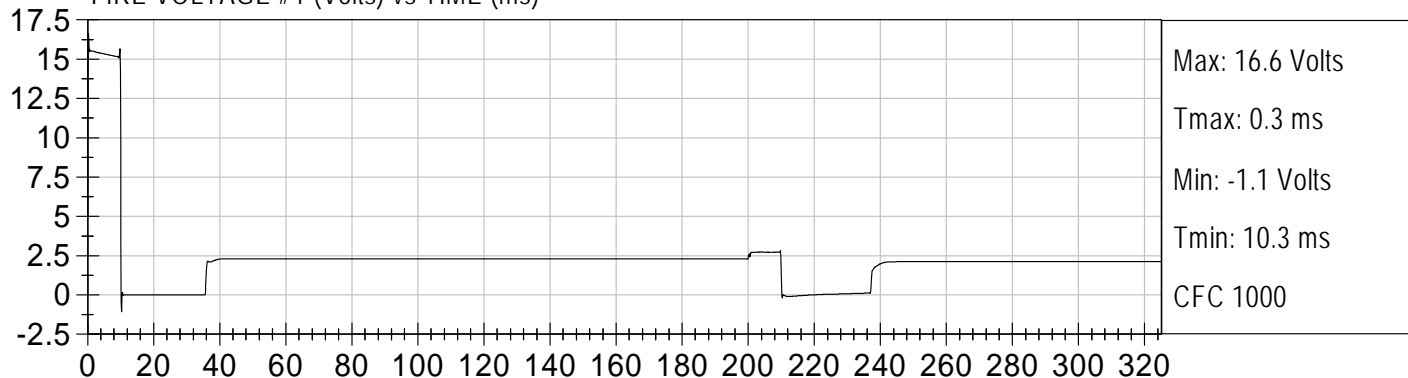




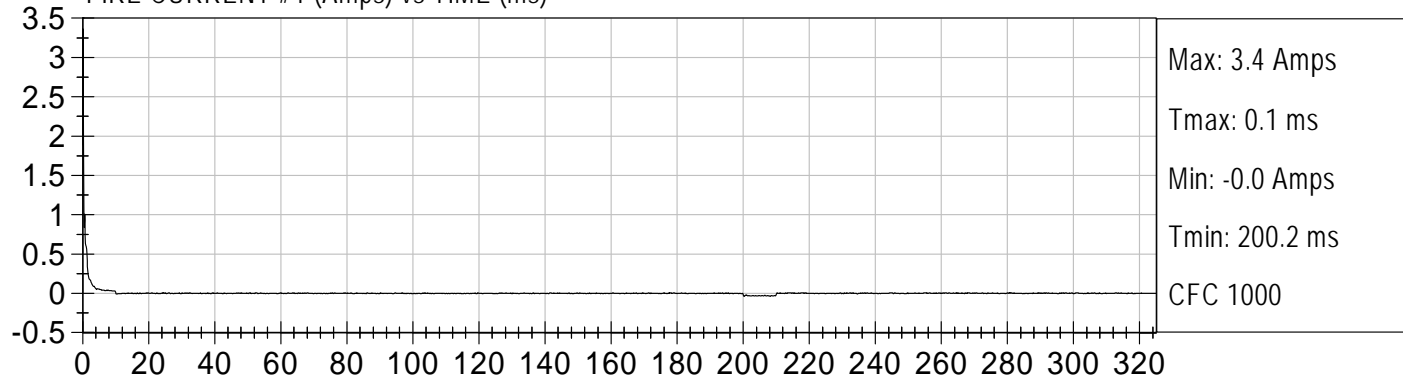




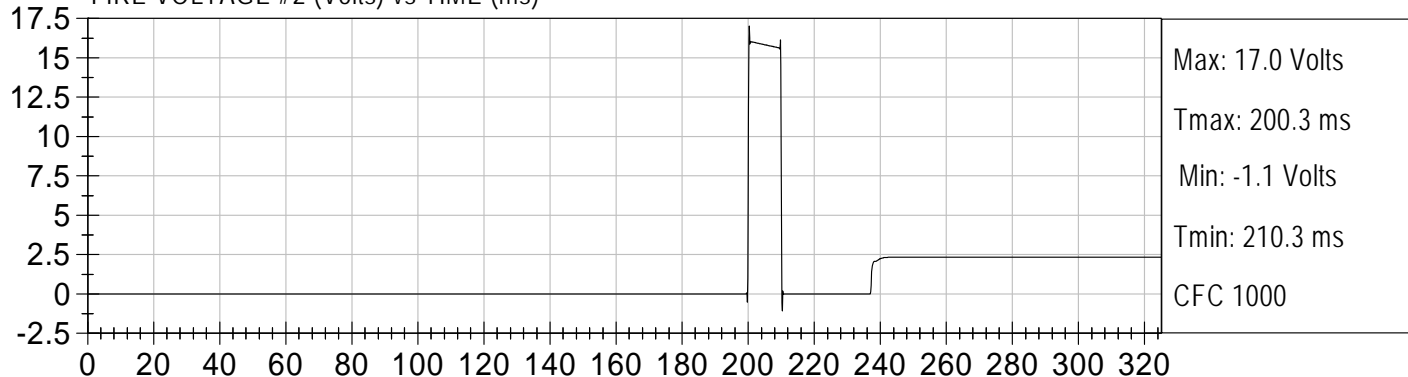
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



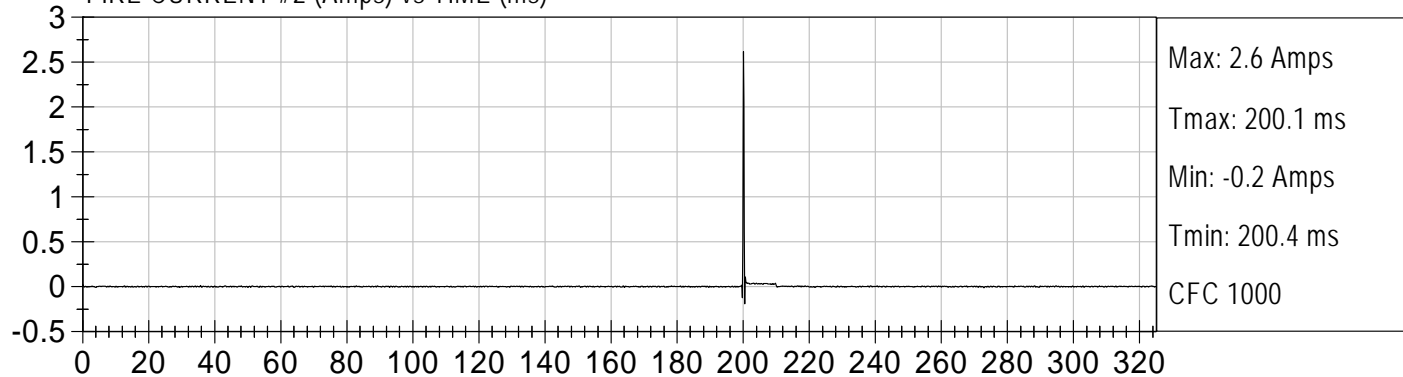
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)

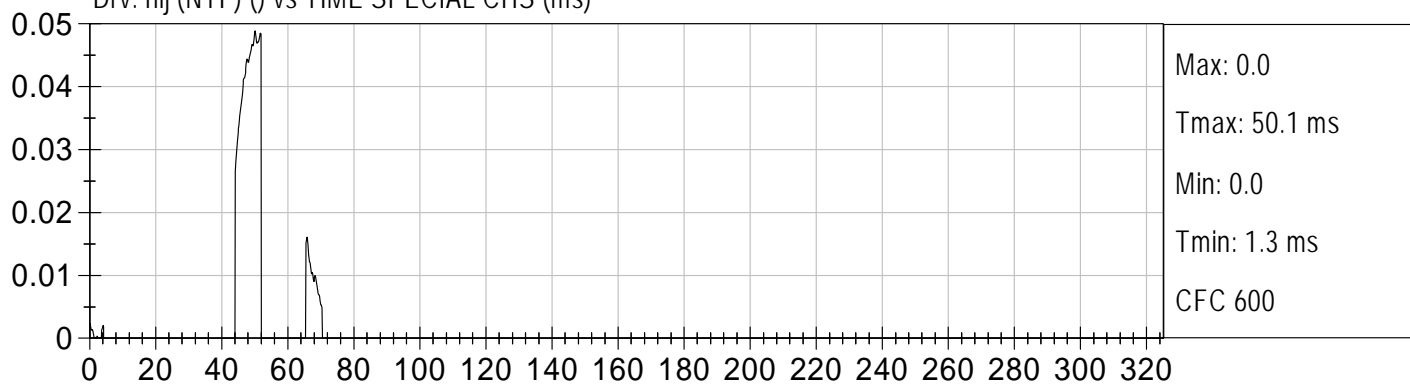


FIRE CURRENT #2 (Amps) vs TIME (ms)

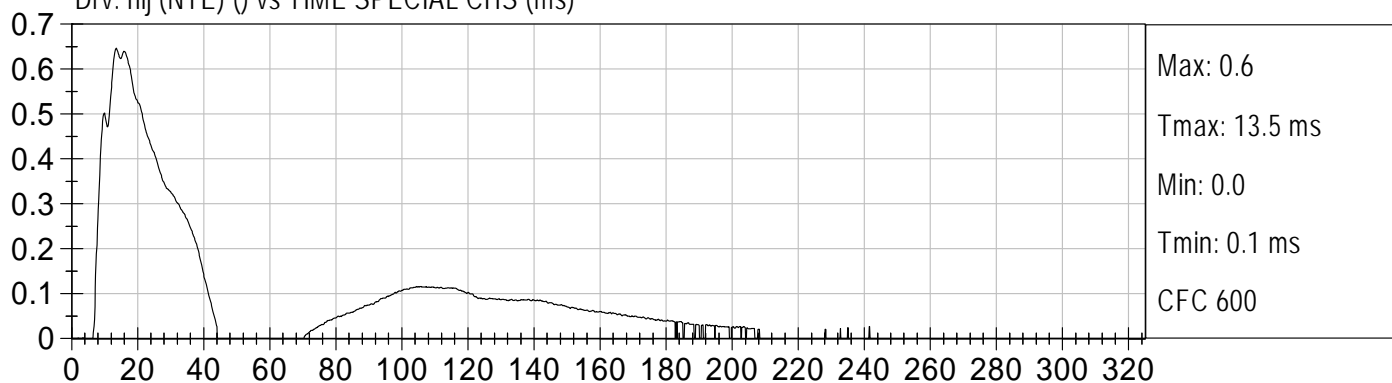




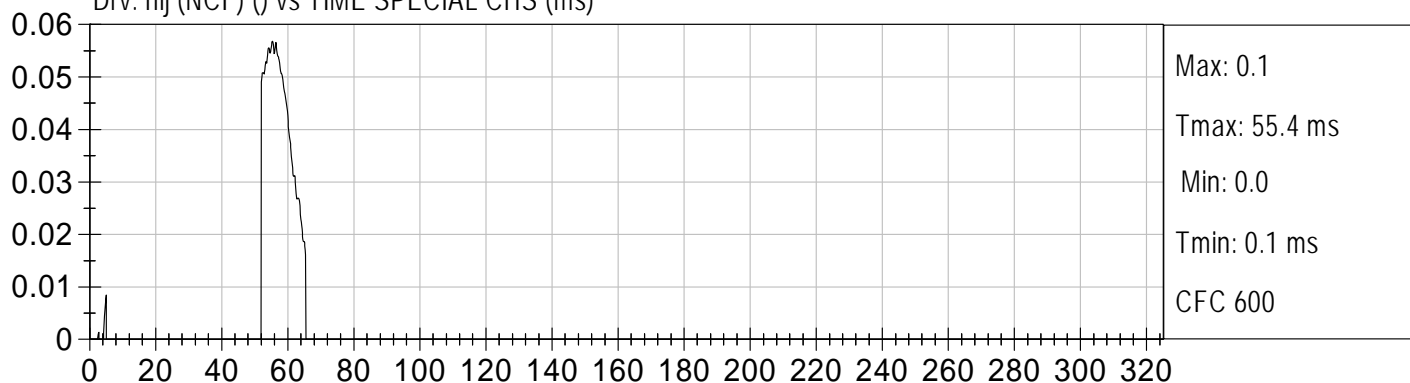
Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)



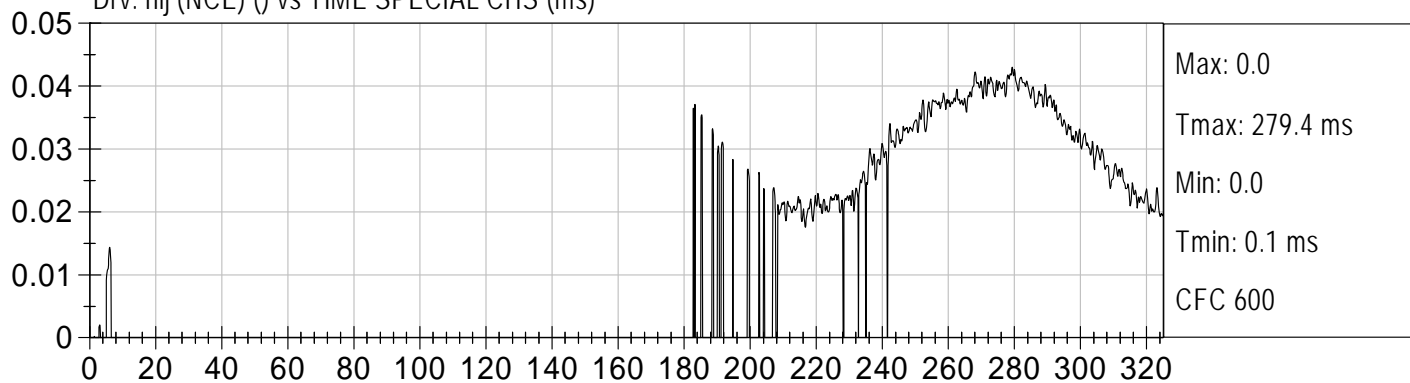
Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)



Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)

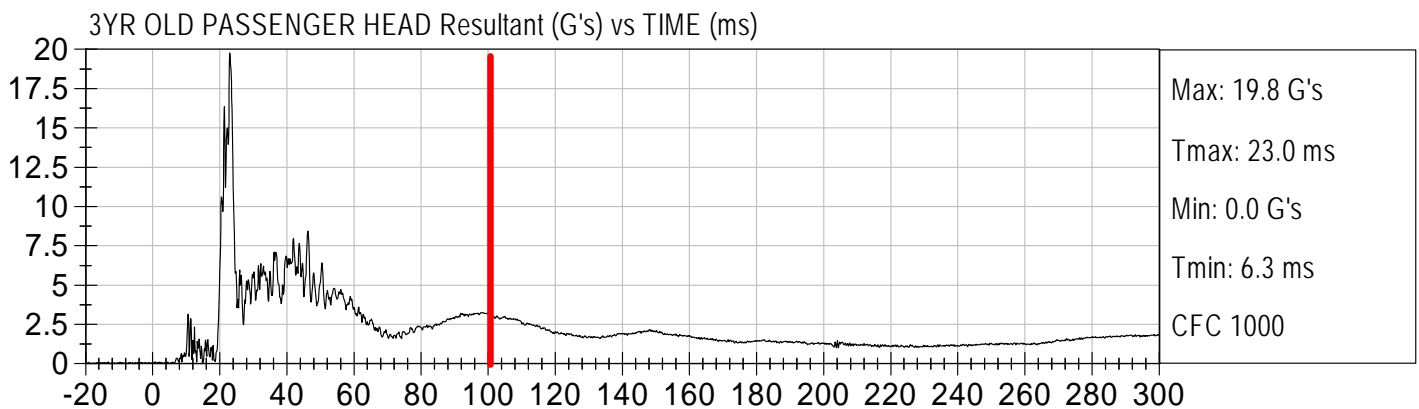
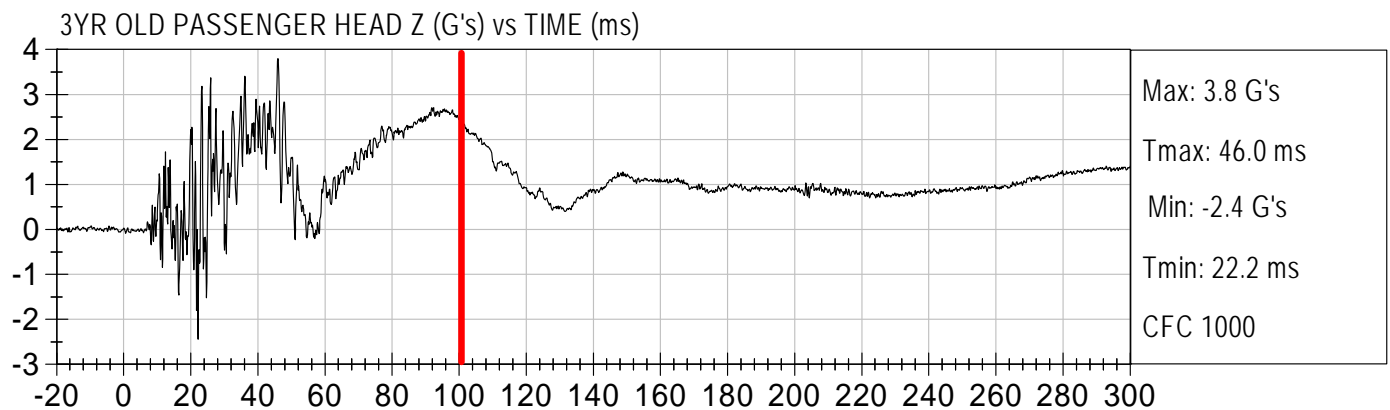
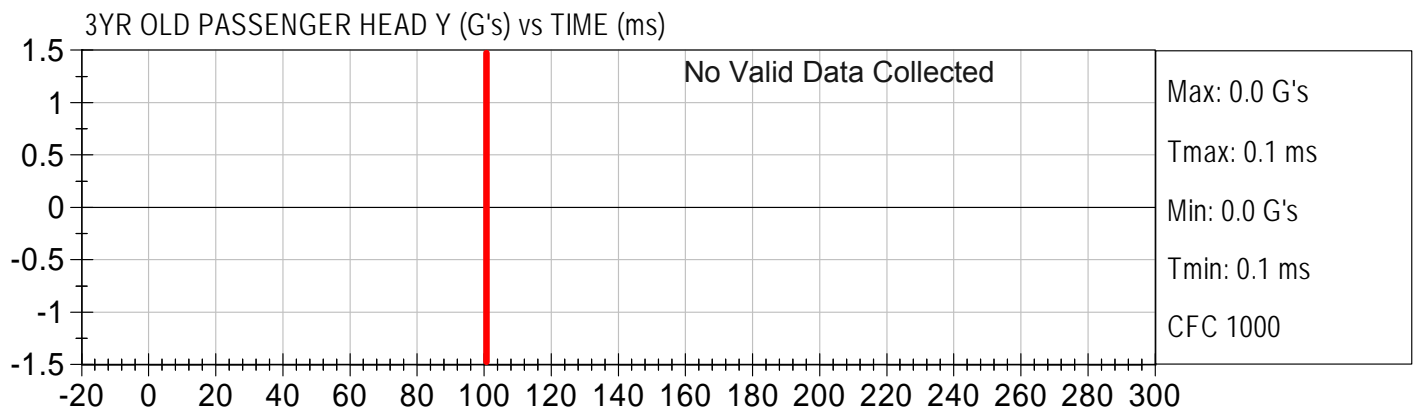
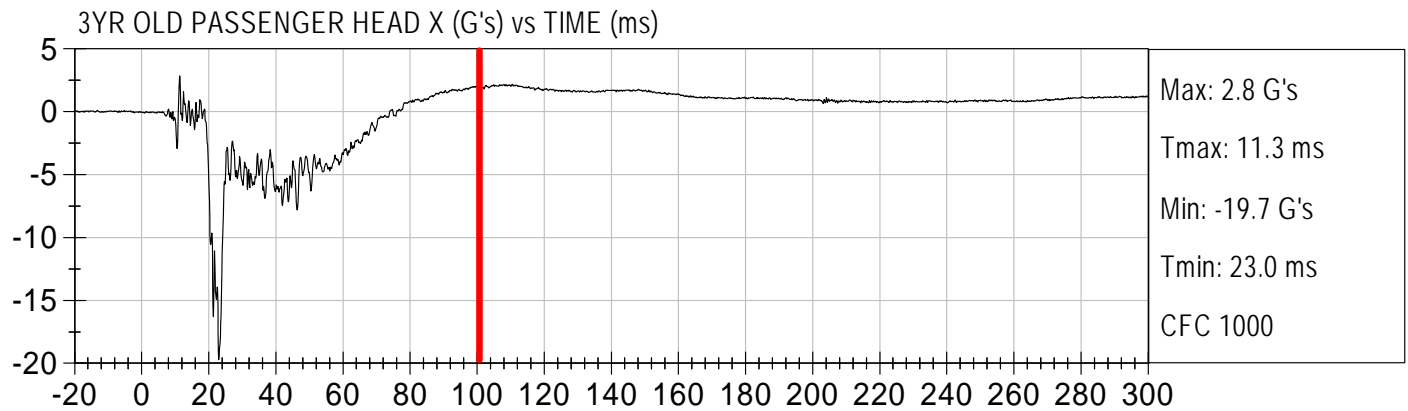


Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)



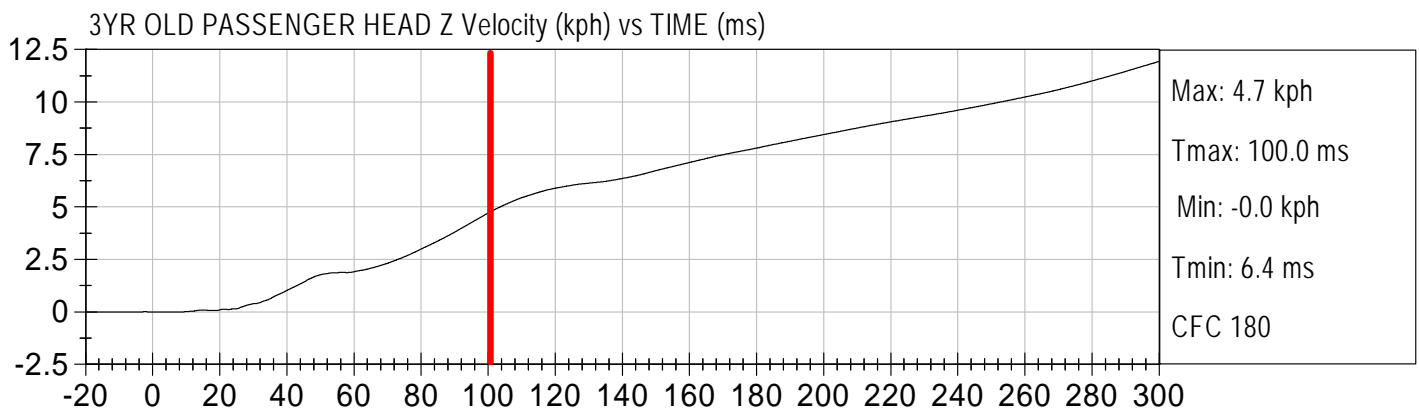
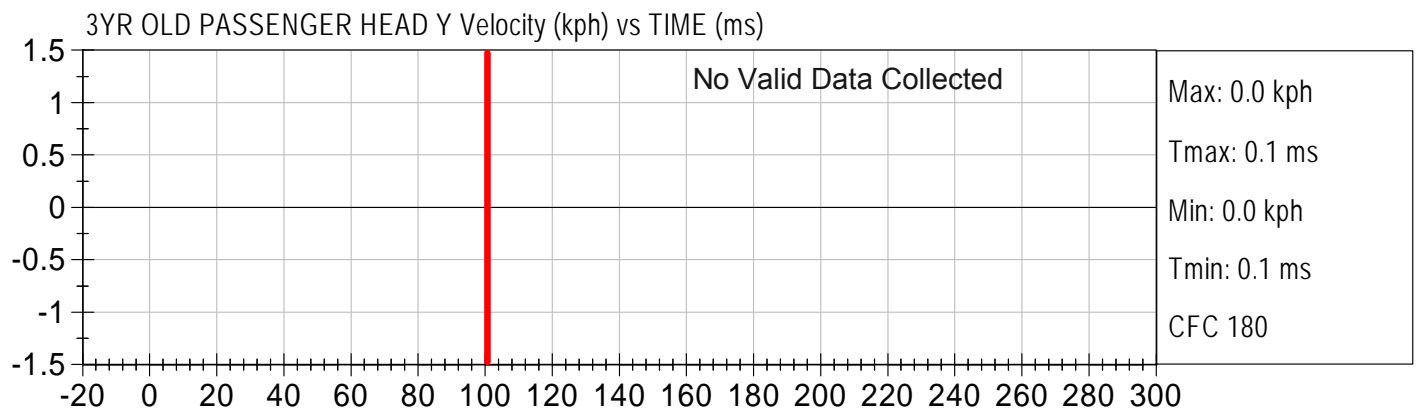
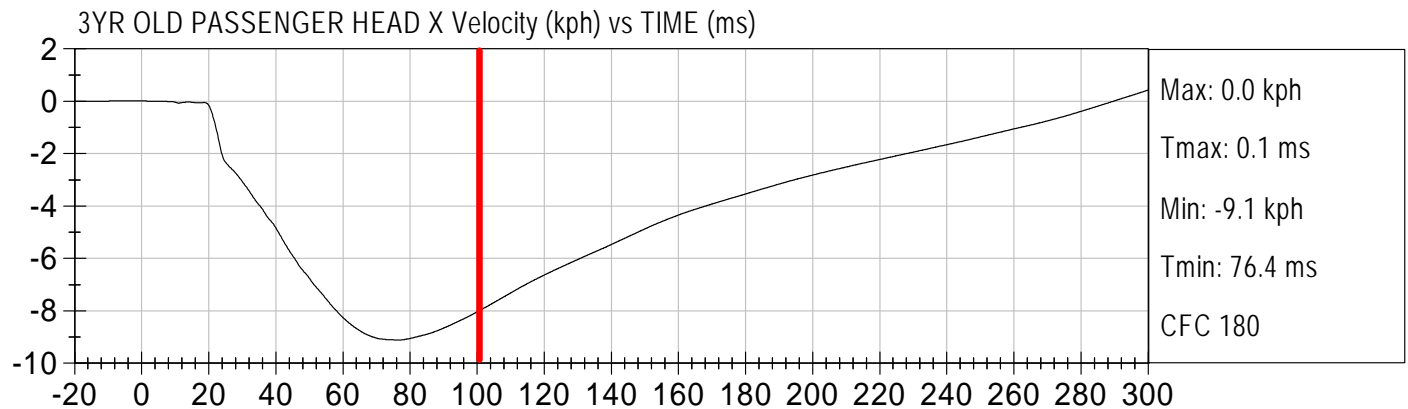


Injury Values Calculated between 0ms and 100ms





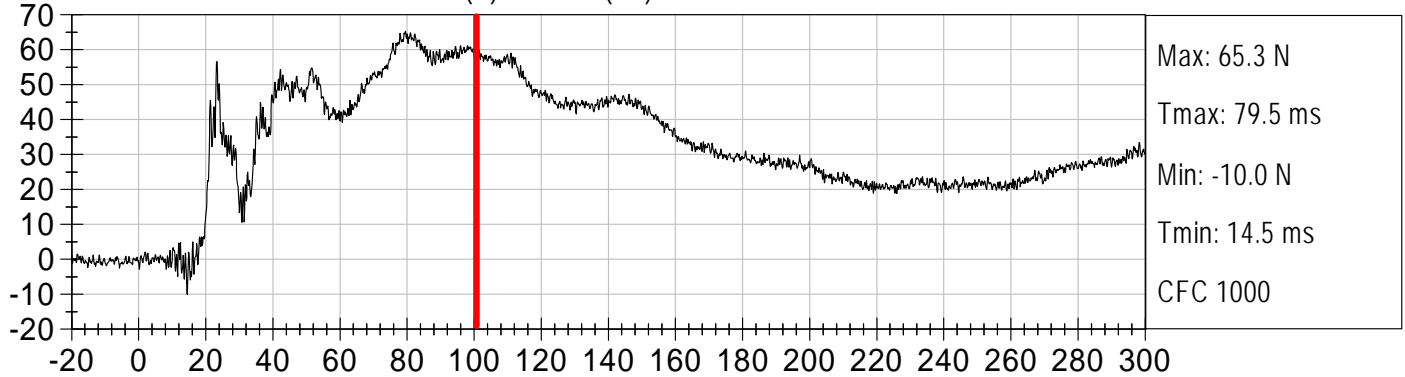
Injury Values Calculated between 0ms and 100ms



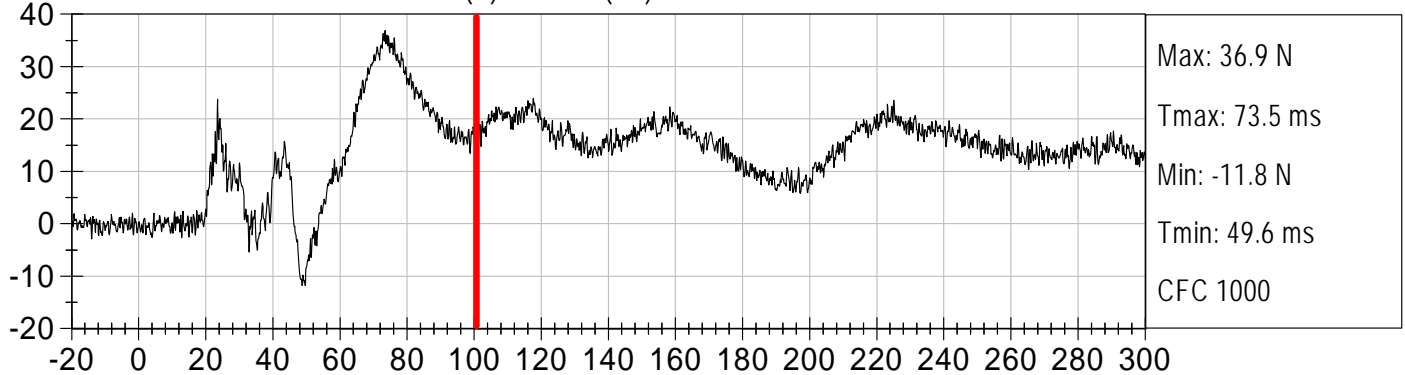


Injury Values Calculated between 0ms and 100ms

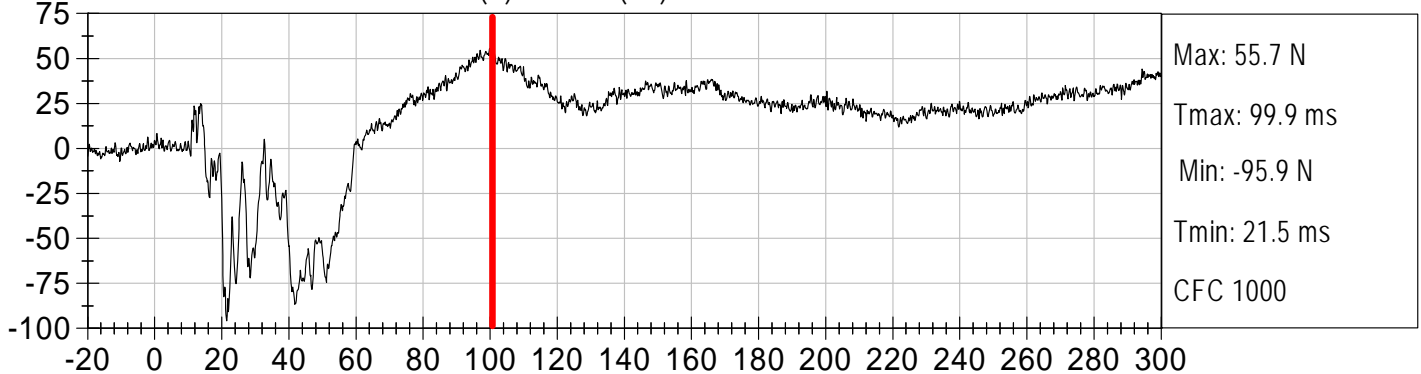
3YR OLD PASSENGER NECK FX (N) vs TIME (ms)



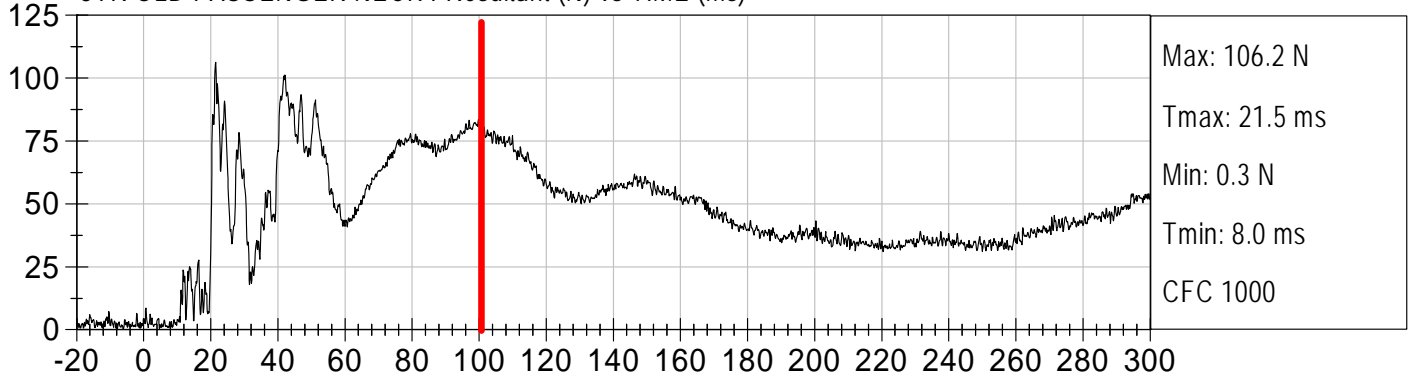
3YR OLD PASSENGER NECK FY (N) vs TIME (ms)



3YR OLD PASSENGER NECK FZ (N) vs TIME (ms)



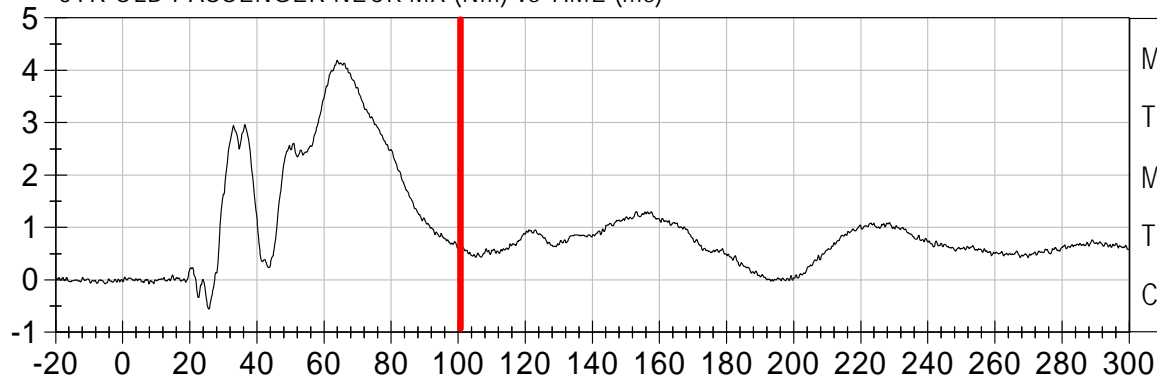
3YR OLD PASSENGER NECK FResultant (N) vs TIME (ms)



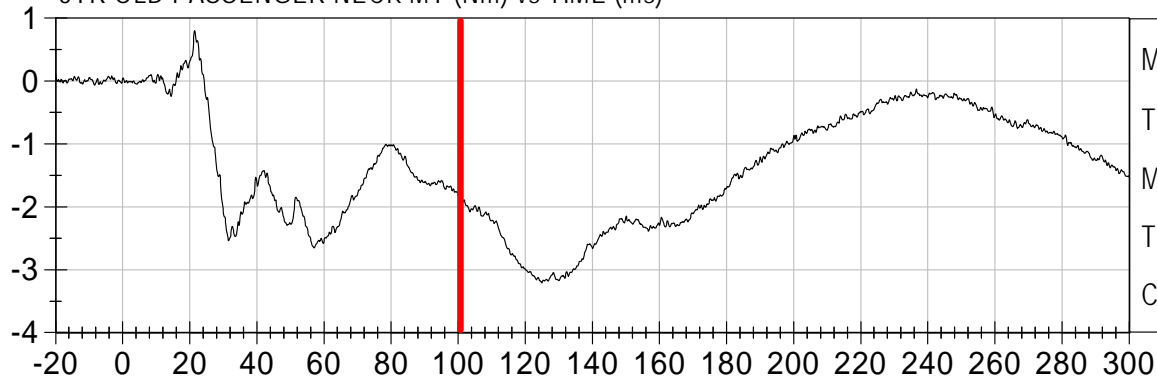


Injury Values Calculated between 0ms and 100ms

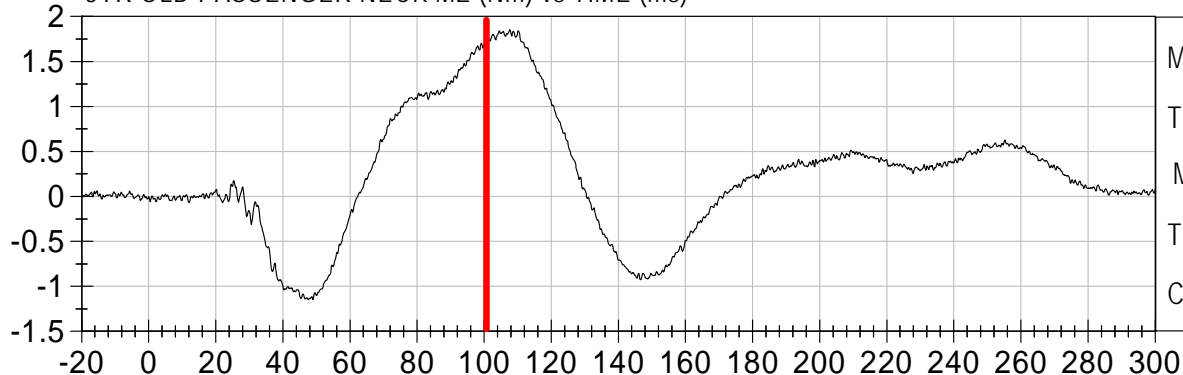
3YR OLD PASSENGER NECK MX (Nm) vs TIME (ms)



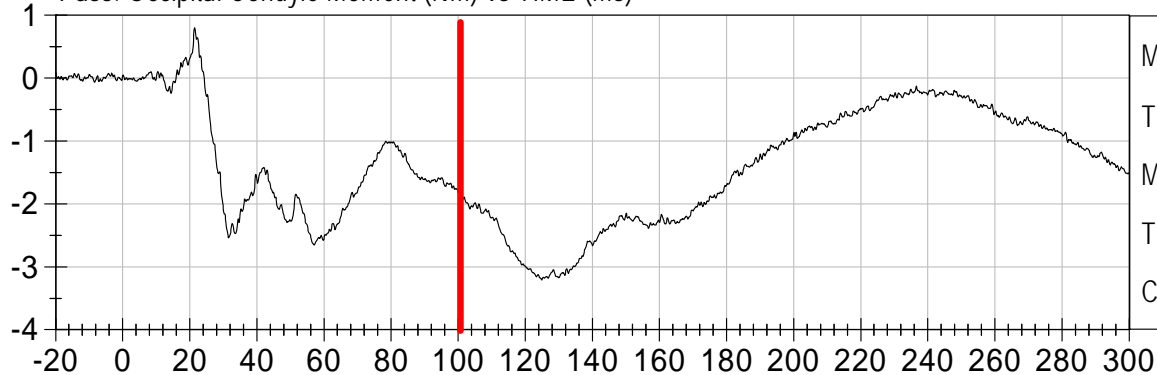
3YR OLD PASSENGER NECK MY (Nm) vs TIME (ms)



3YR OLD PASSENGER NECK MZ (Nm) vs TIME (ms)



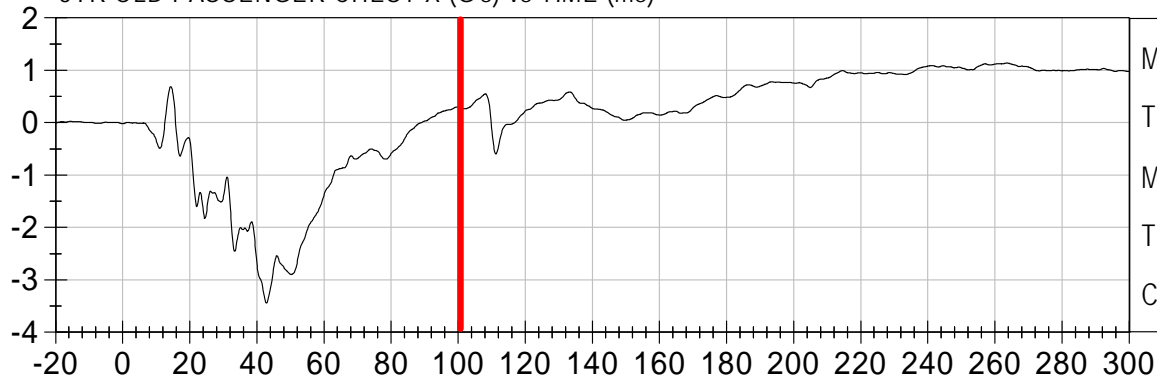
Pass. Occipital Condyle Moment (Nm) vs TIME (ms)





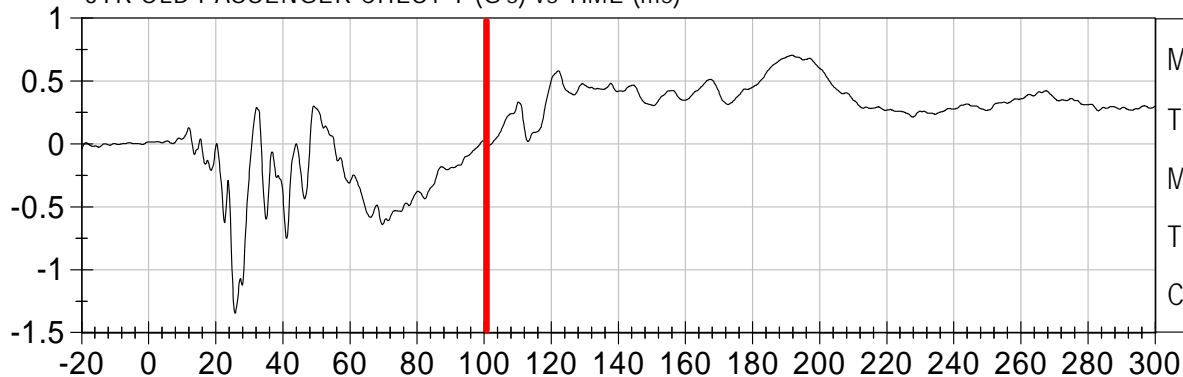
Injury Values Calculated between 0ms and 100ms

3YR OLD PASSENGER CHEST X (G's) vs TIME (ms)



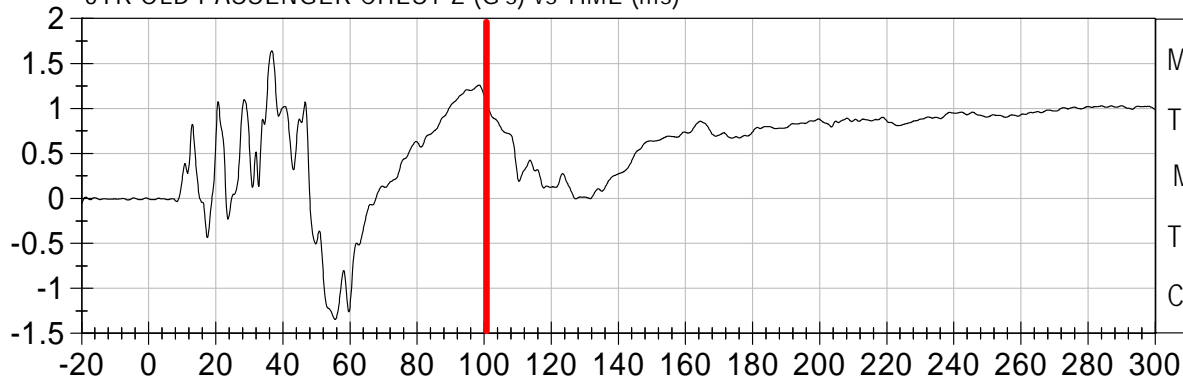
Max: 0.7 G's  
Tmax: 14.3 ms  
Min: -3.4 G's  
Tmin: 42.9 ms  
CFC 180

3YR OLD PASSENGER CHEST Y (G's) vs TIME (ms)



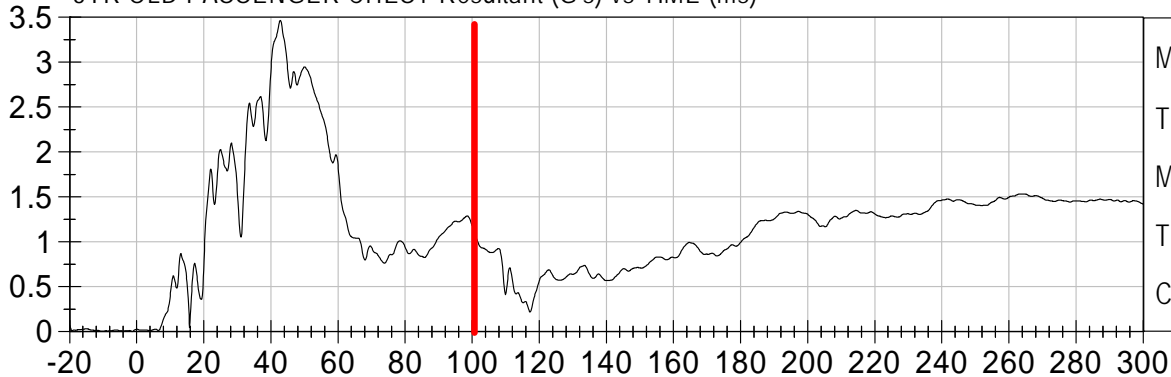
Max: 0.3 G's  
Tmax: 49.2 ms  
Min: -1.3 G's  
Tmin: 25.8 ms  
CFC 180

3YR OLD PASSENGER CHEST Z (G's) vs TIME (ms)



Max: 1.6 G's  
Tmax: 36.7 ms  
Min: -1.3 G's  
Tmin: 55.6 ms  
CFC 180

3YR OLD PASSENGER CHEST Resultant (G's) vs TIME (ms)

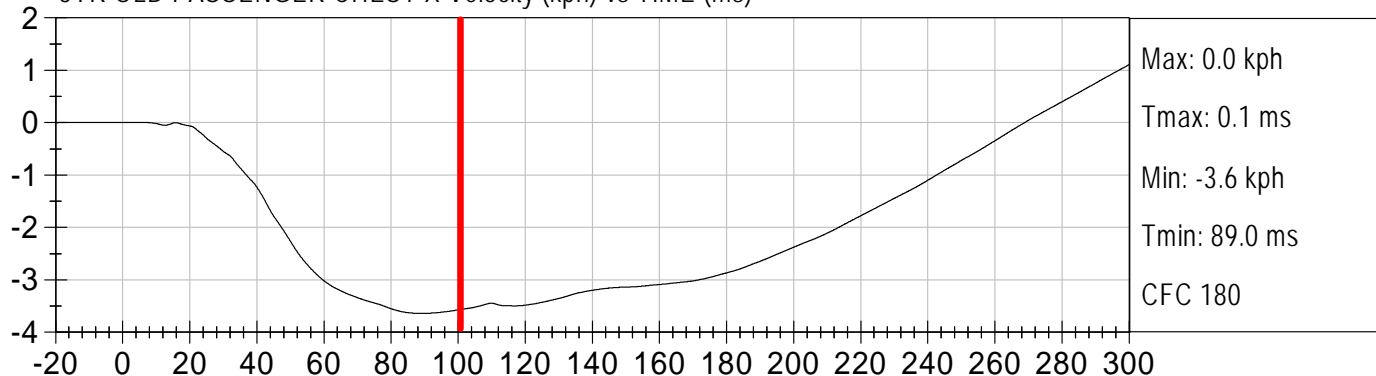


Max: 3.5 G's  
Tmax: 42.8 ms  
Min: 0.0 G's  
Tmin: 3.9 ms  
CFC 180

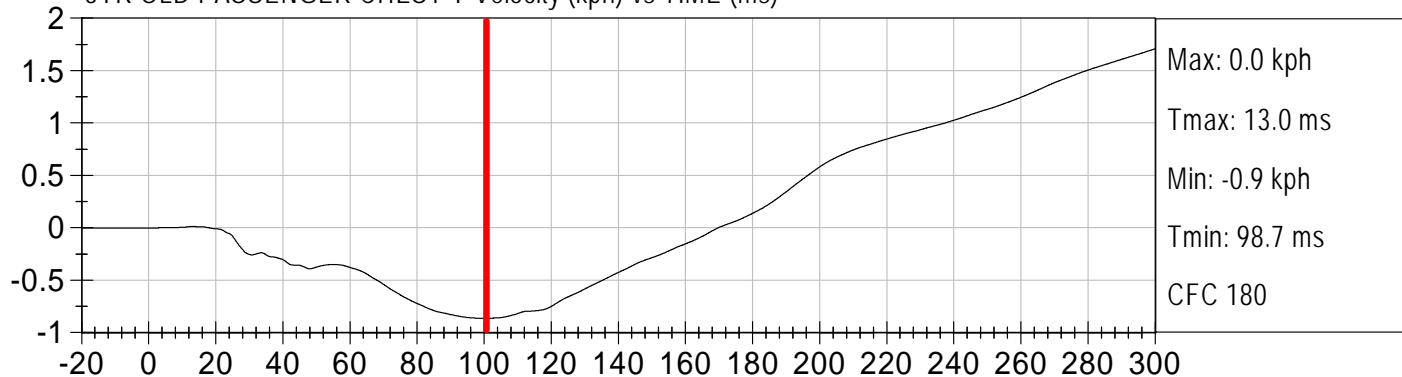


Injury Values Calculated between 0ms and 100ms

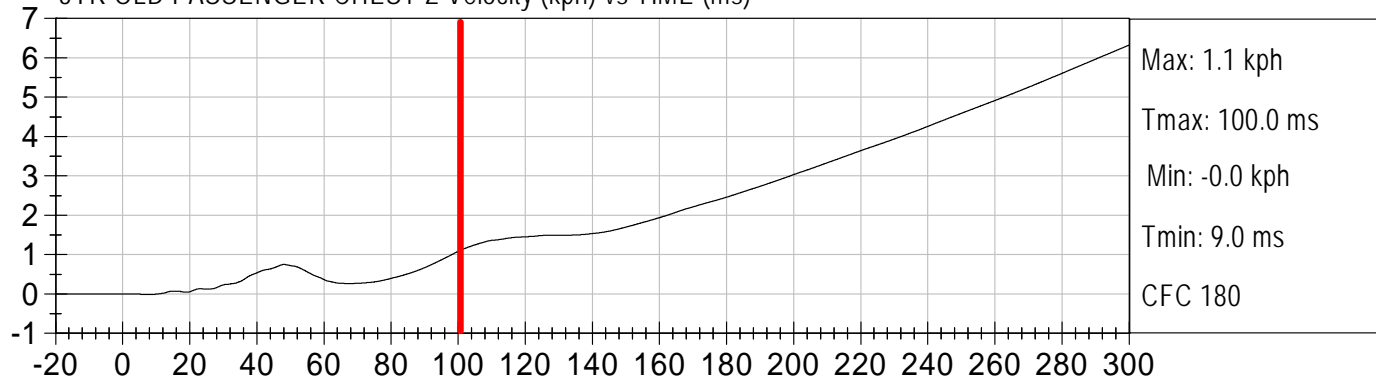
3YR OLD PASSENGER CHEST X Velocity (kph) vs TIME (ms)



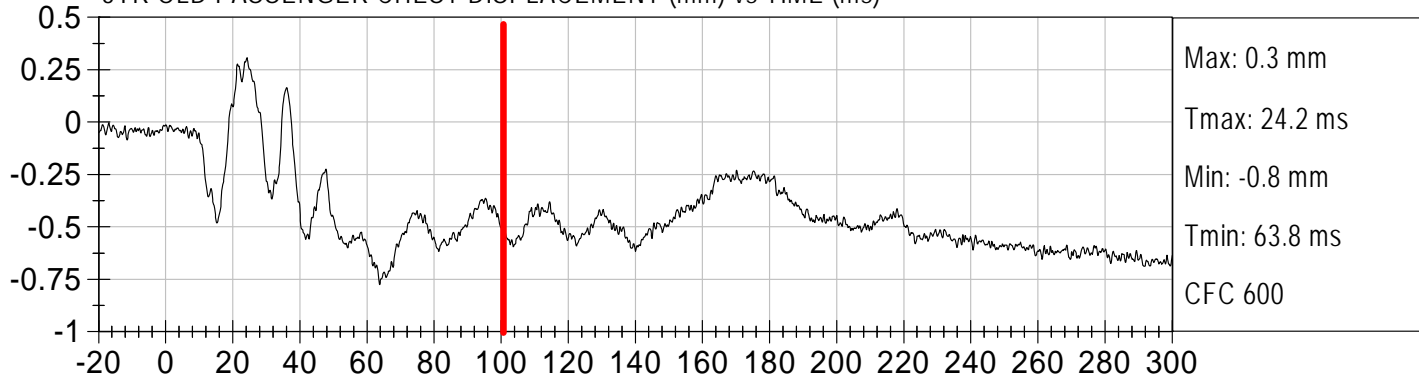
3YR OLD PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



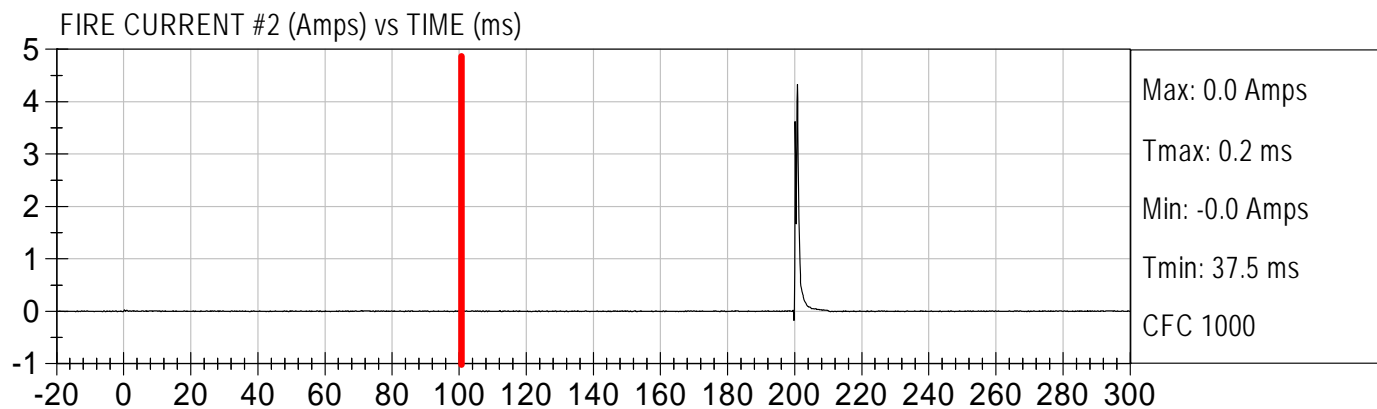
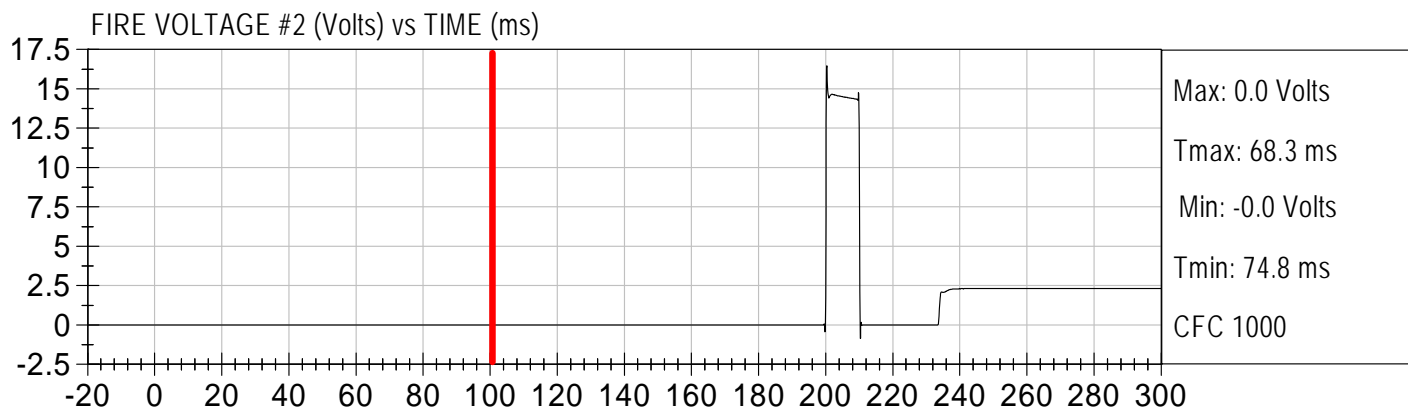
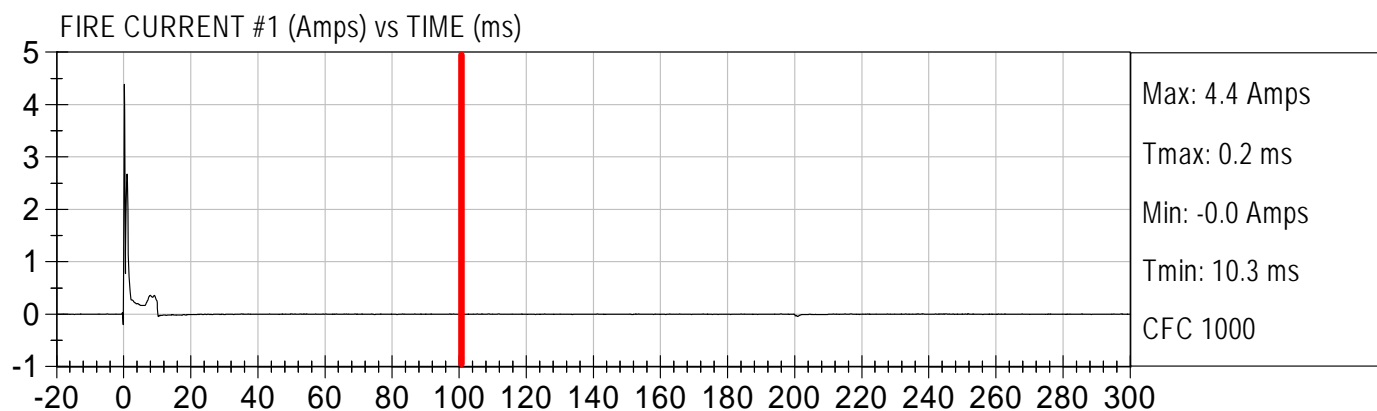
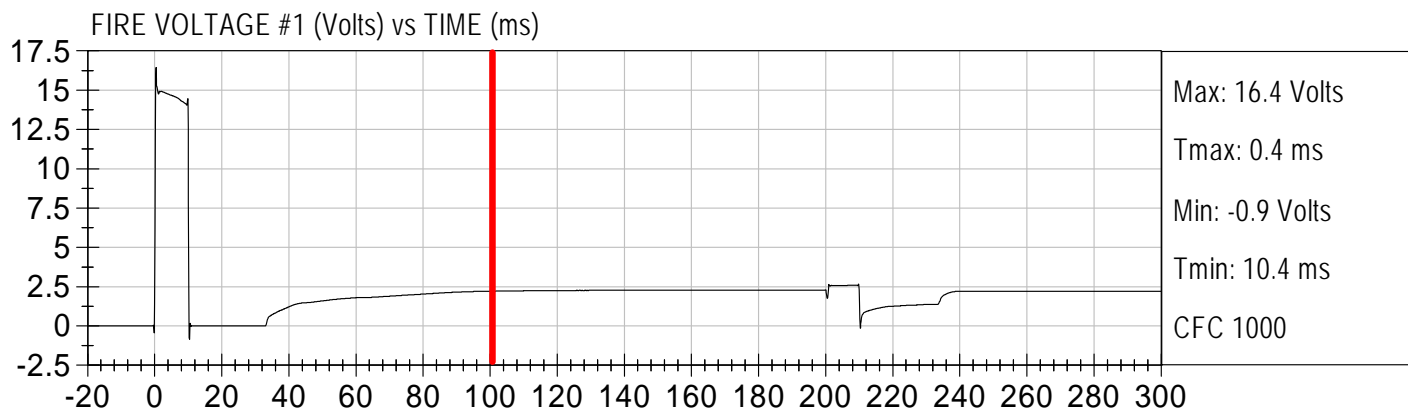
3YR OLD PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)





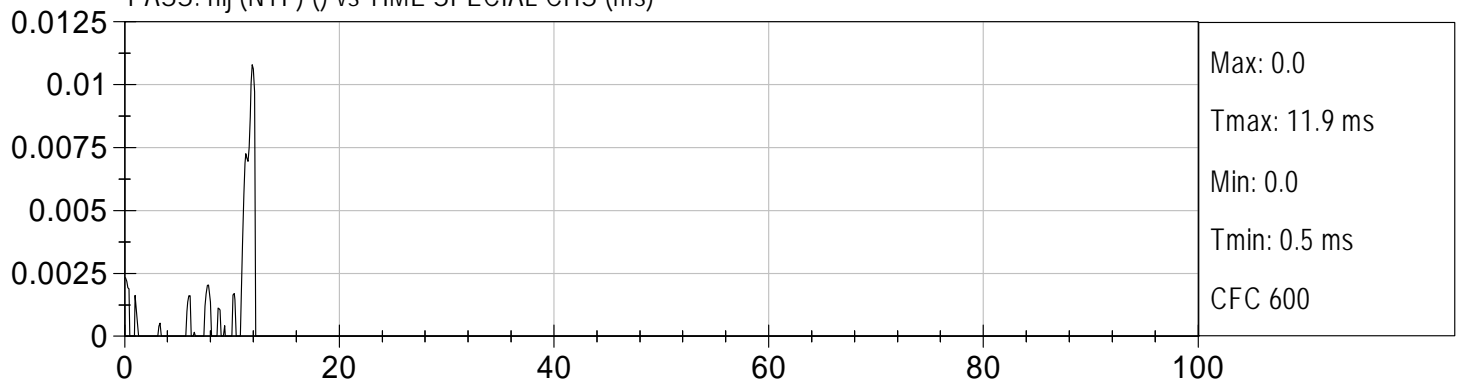


Injury Values Calculated between 0ms and 100ms

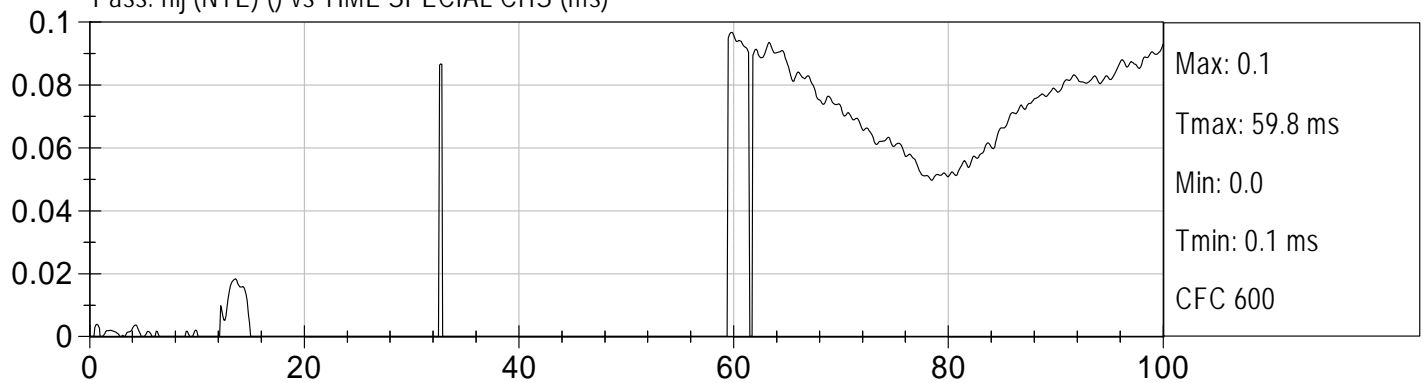




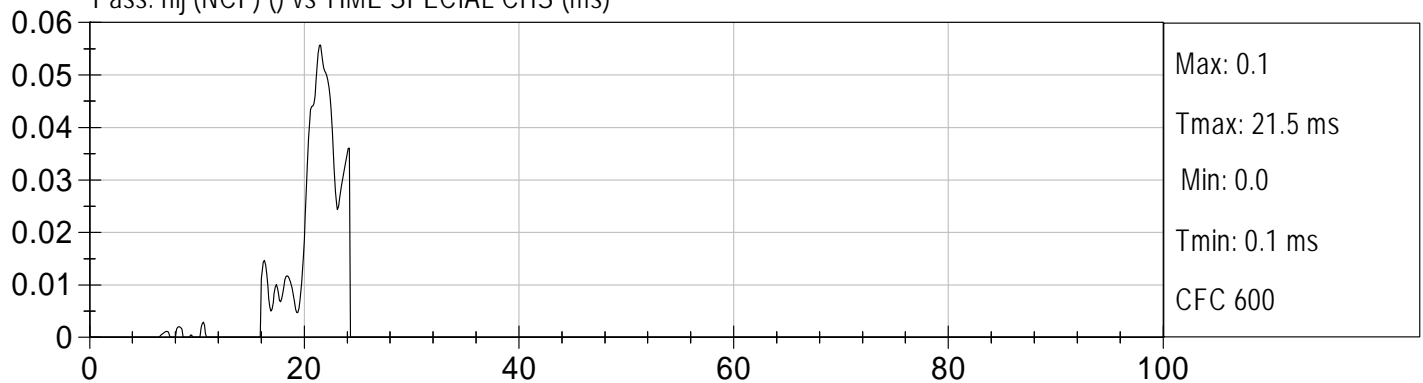
PASS. nij (NTF) () vs TIME SPECIAL CHS (ms)



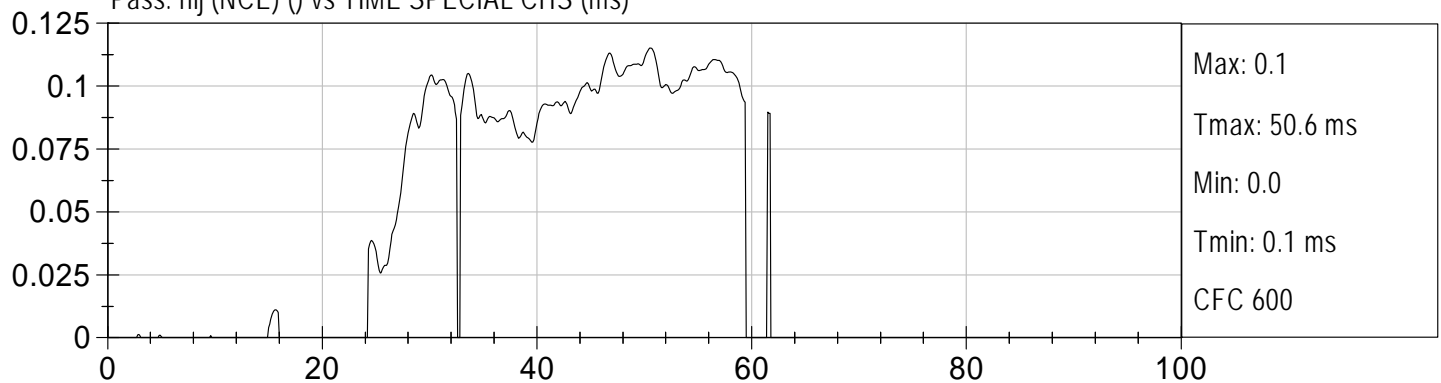
Pass. nij (NTE) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCF) () vs TIME SPECIAL CHS (ms)

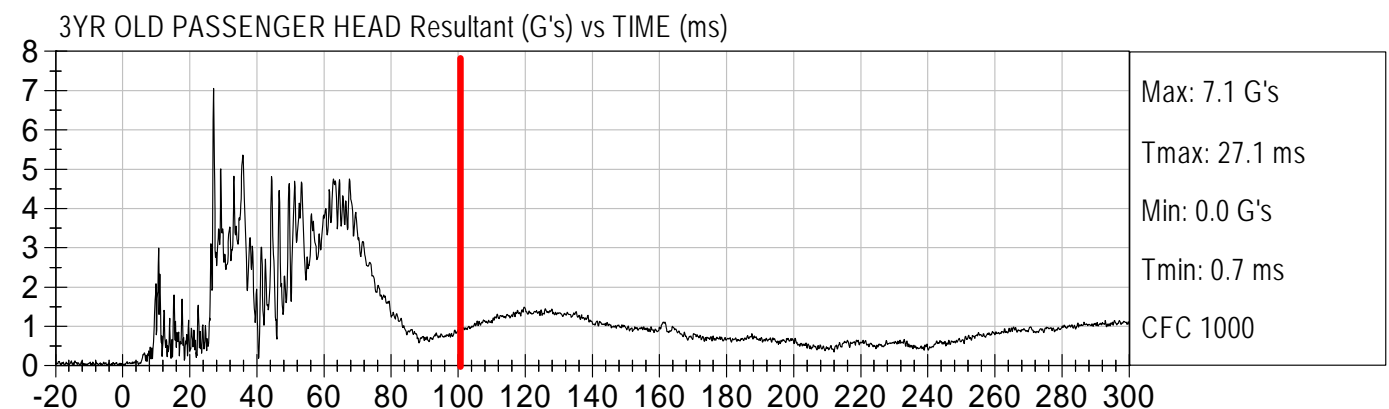
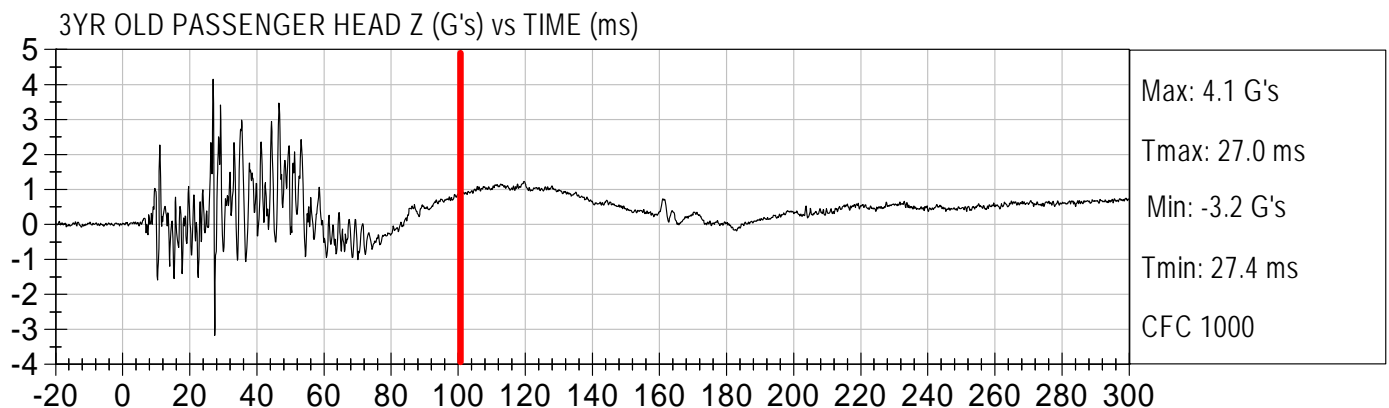
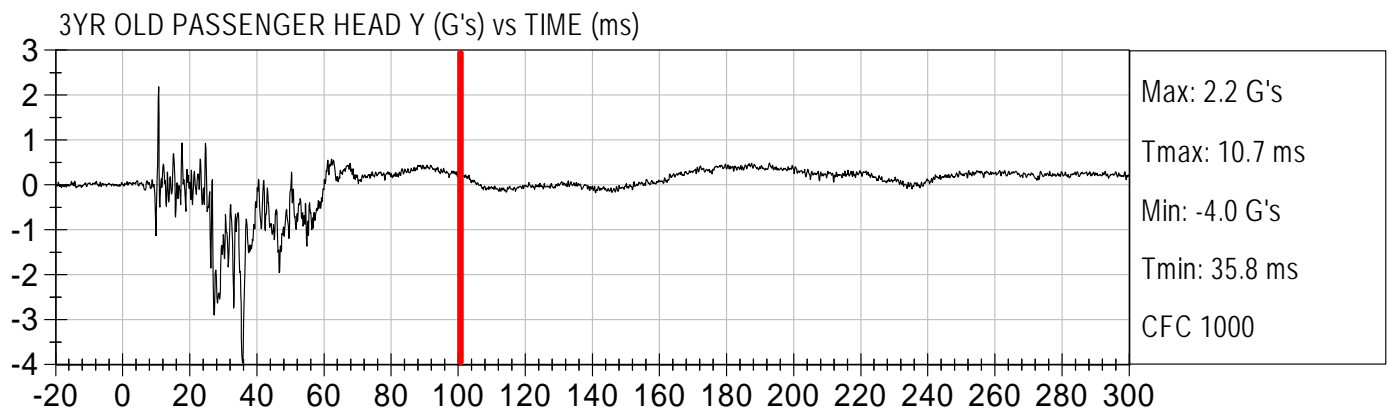
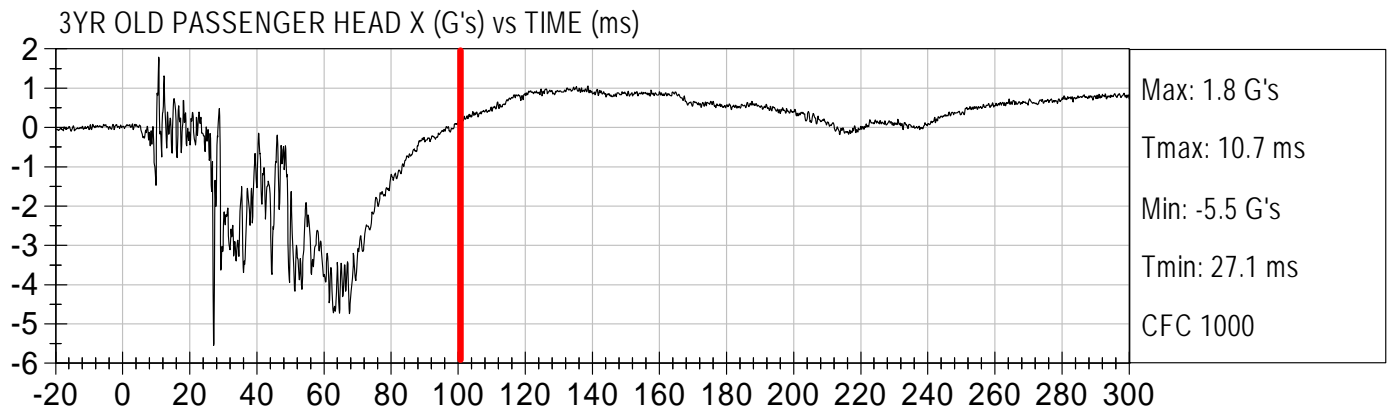


Pass. nij (NCE) () vs TIME SPECIAL CHS (ms)





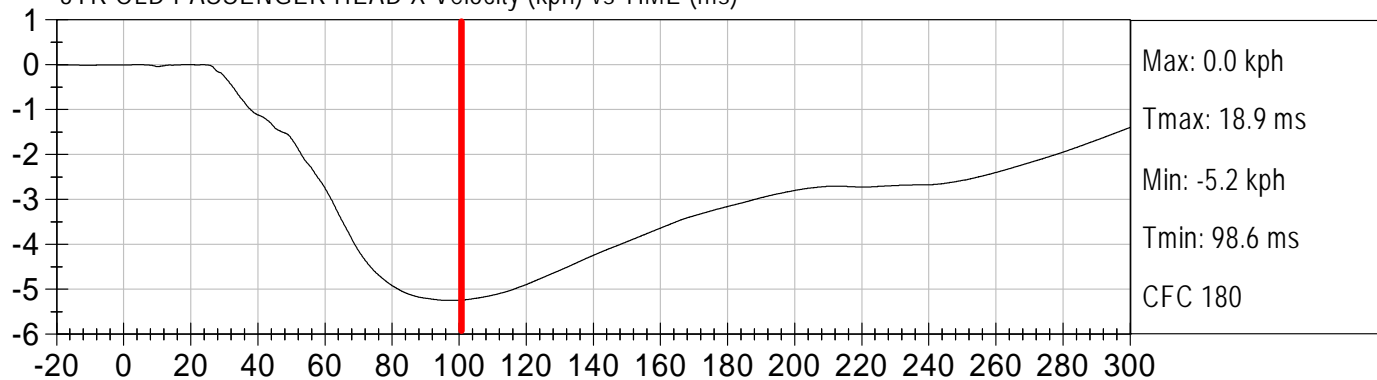
Injury Values Calculated between 0ms and 100ms



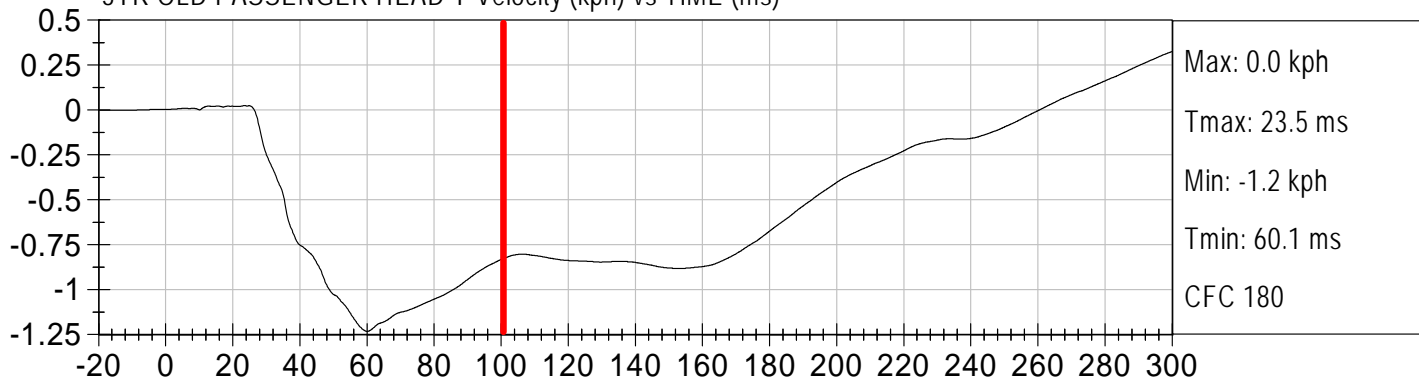


Injury Values Calculated between 0ms and 100ms

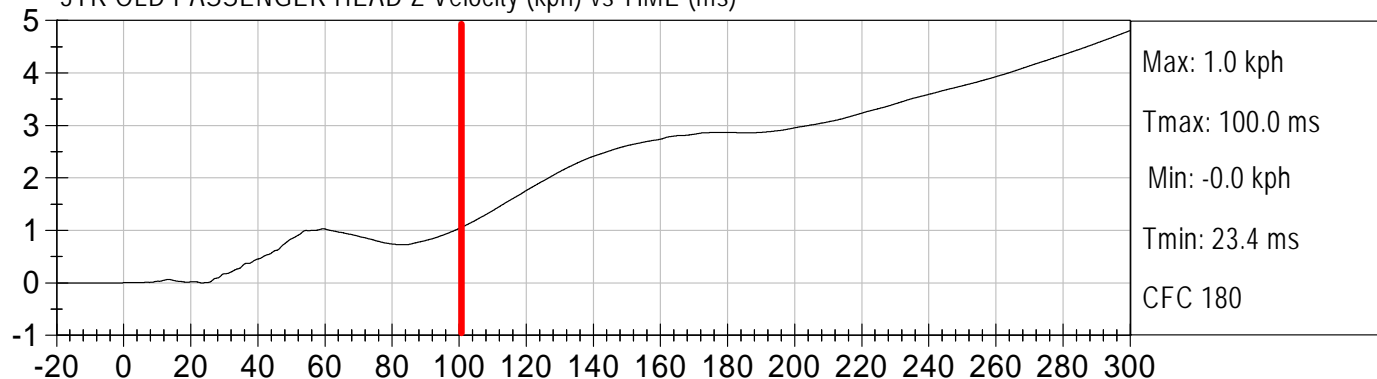
3YR OLD PASSENGER HEAD X Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER HEAD Y Velocity (kph) vs TIME (ms)

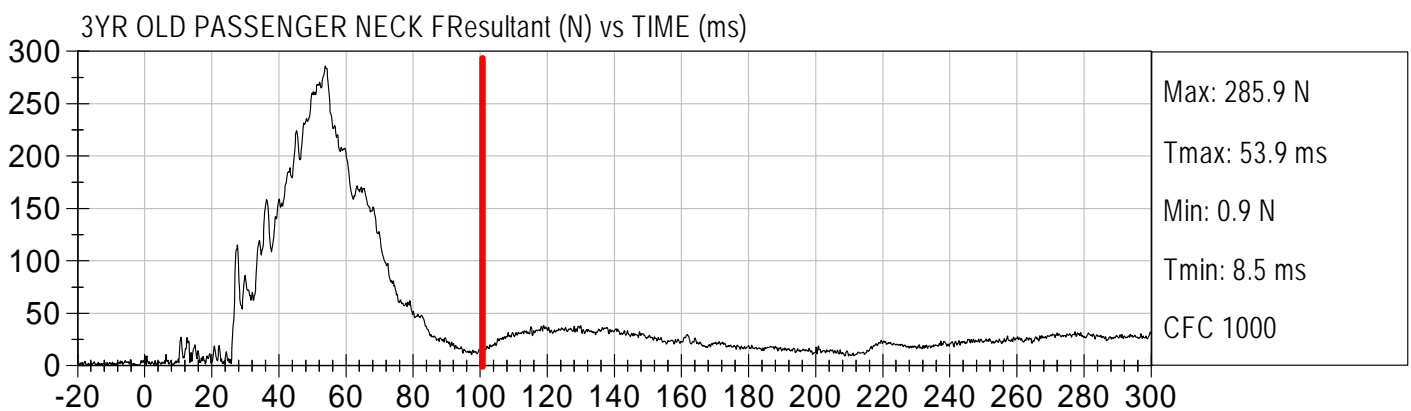
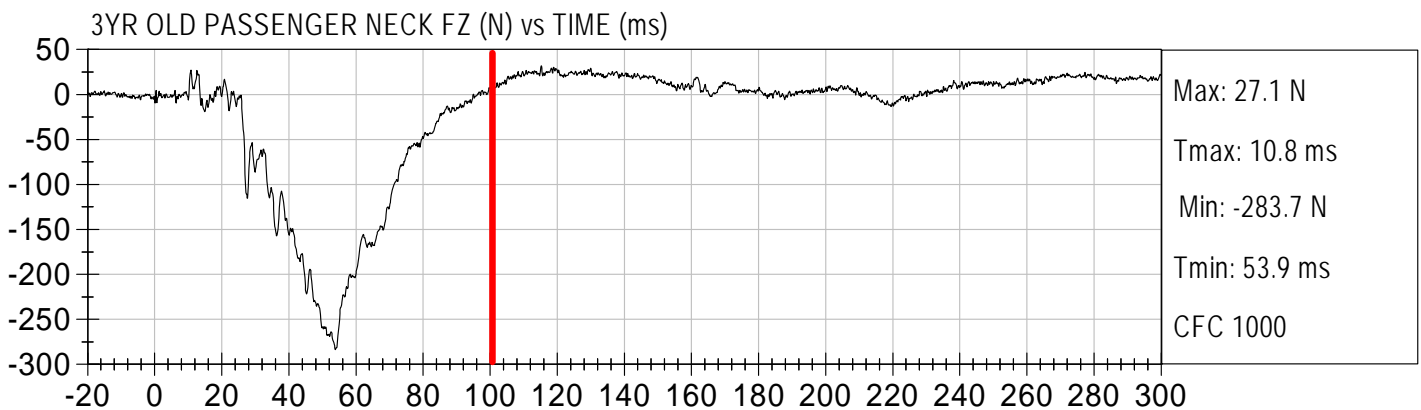
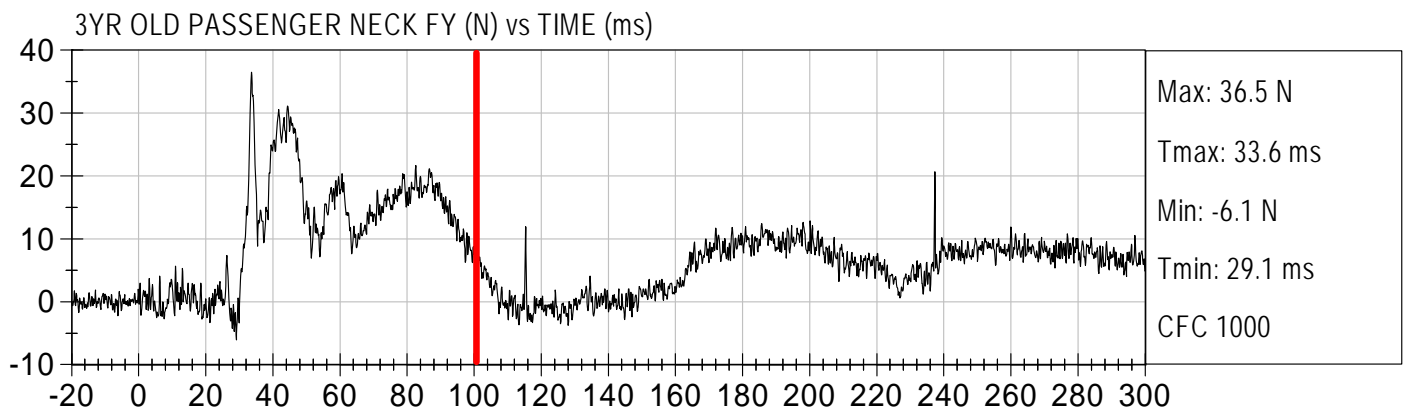
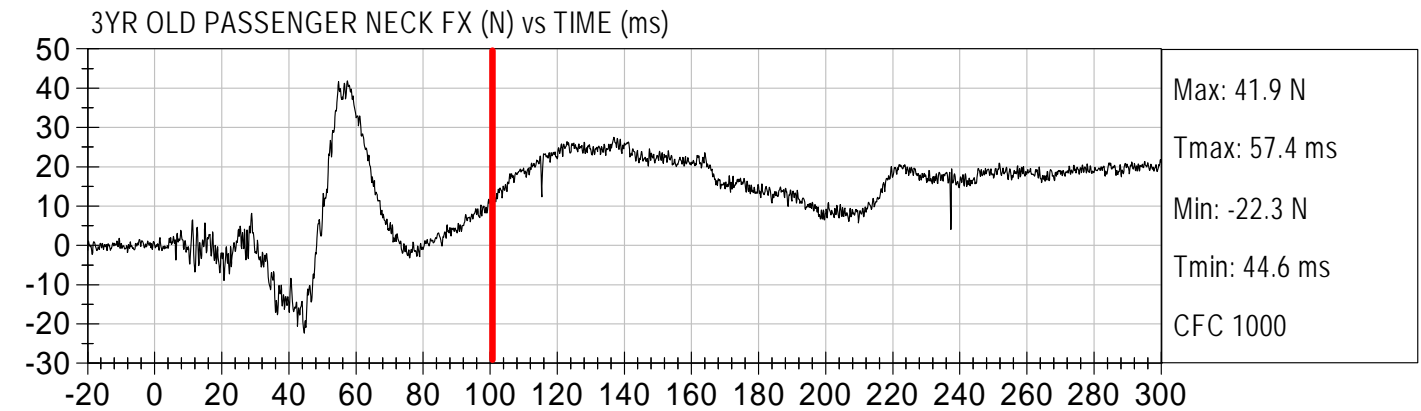


3YR OLD PASSENGER HEAD Z Velocity (kph) vs TIME (ms)



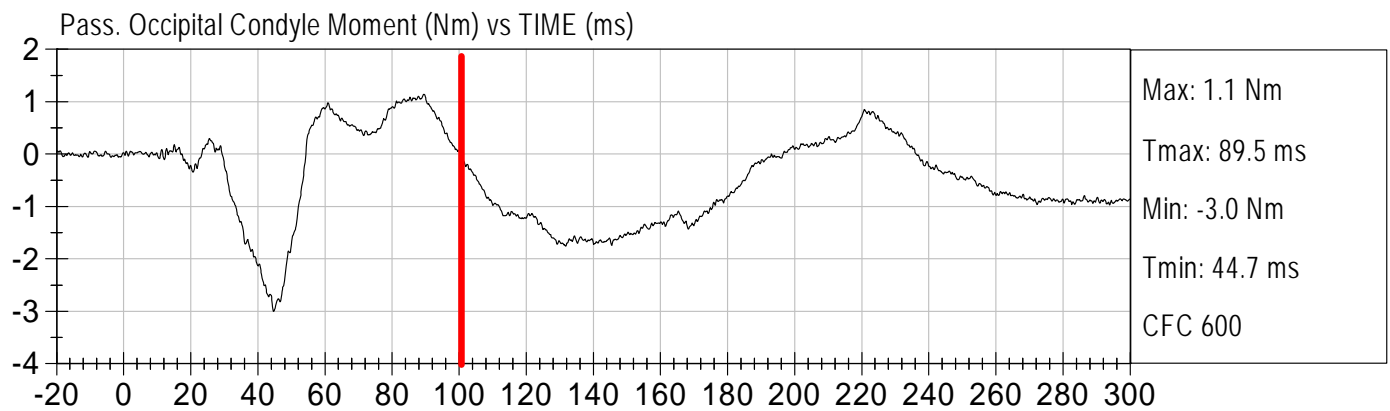
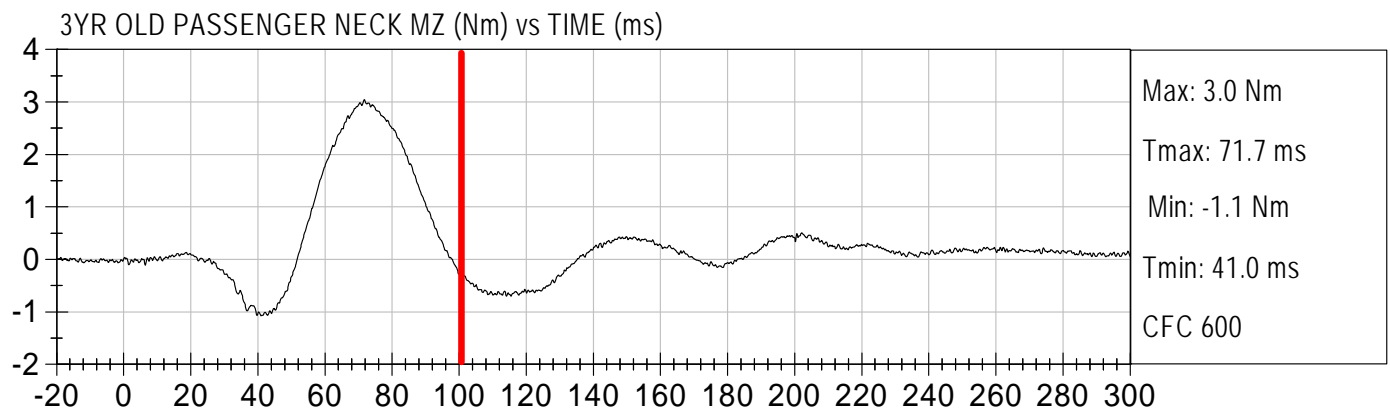
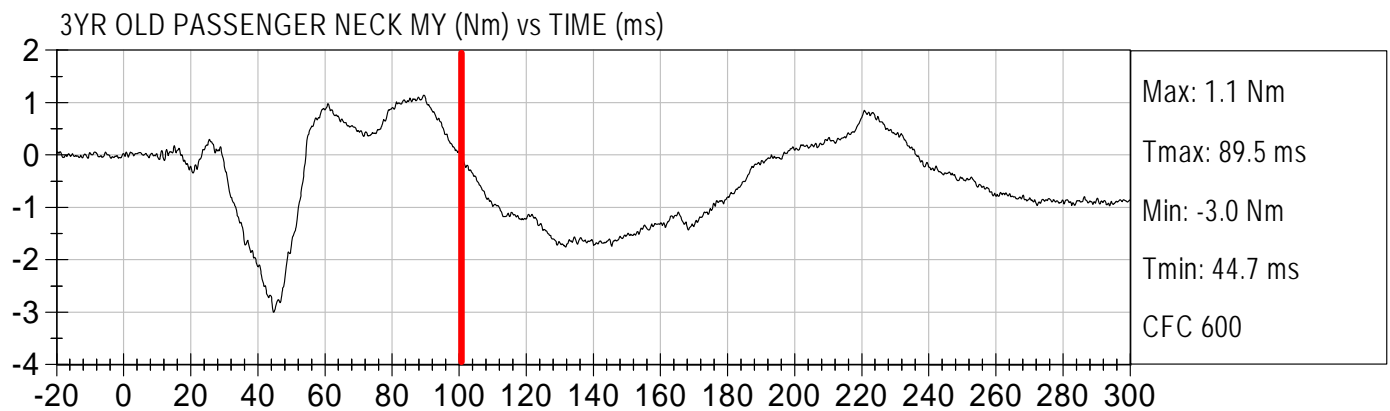
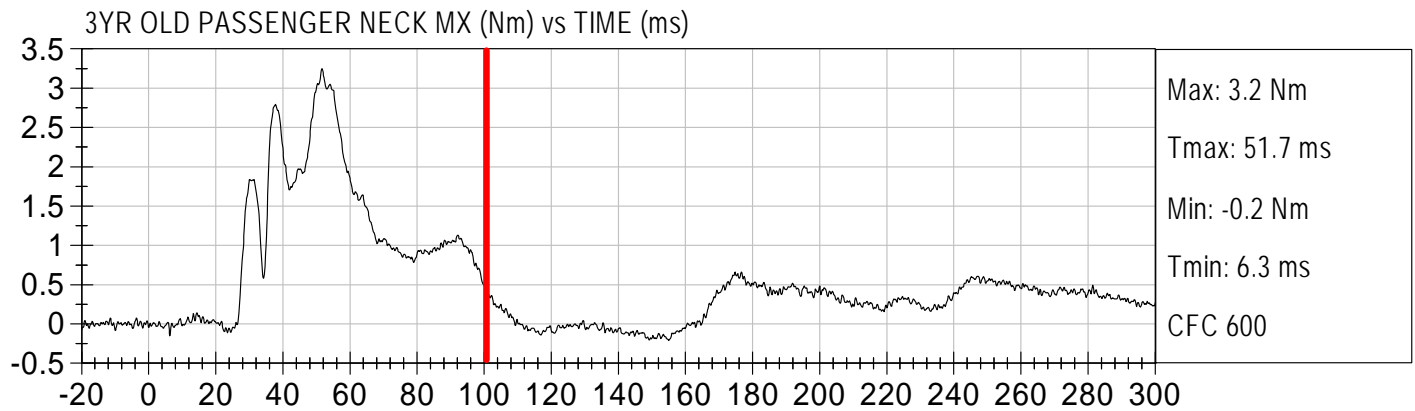


Injury Values Calculated between 0ms and 100ms



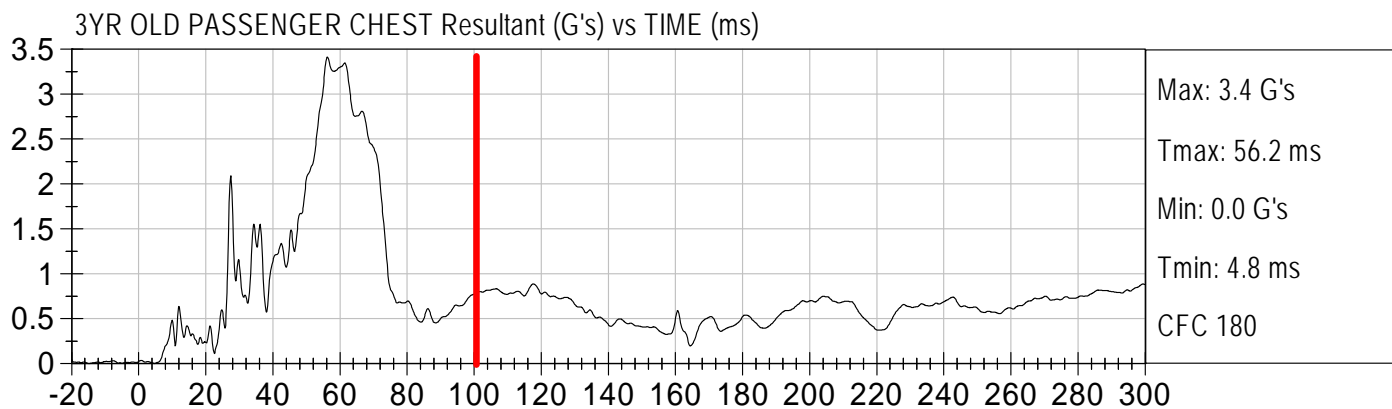
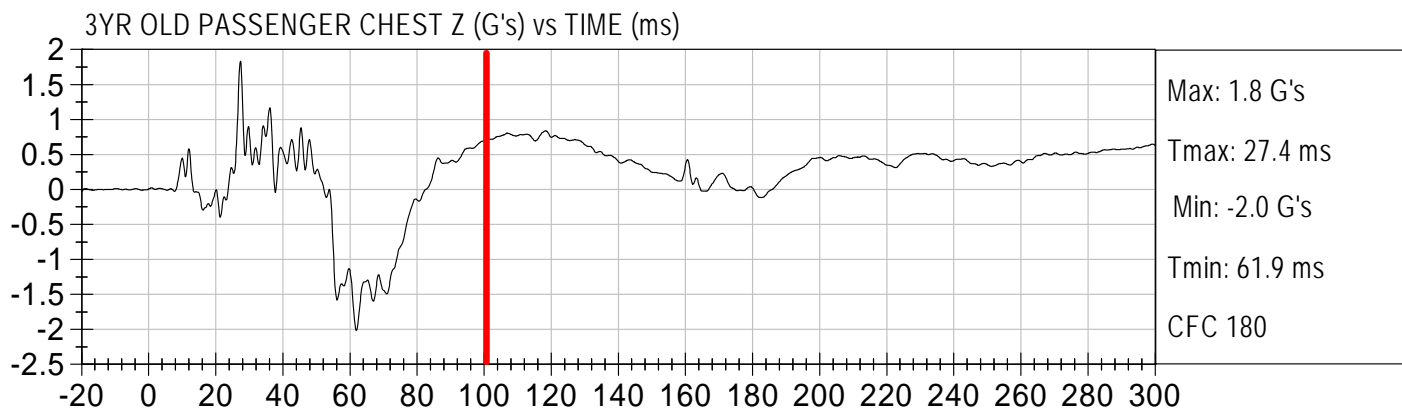
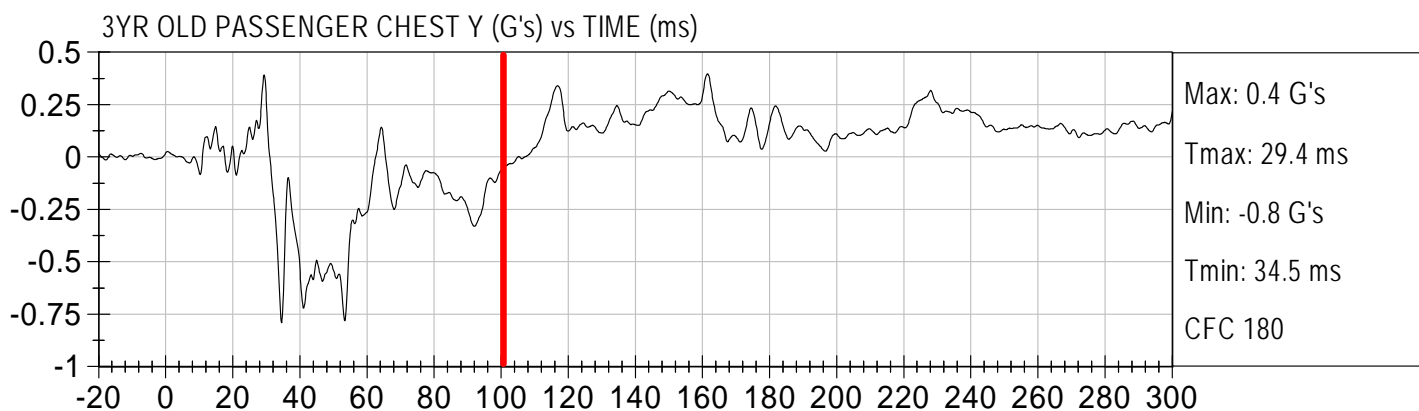
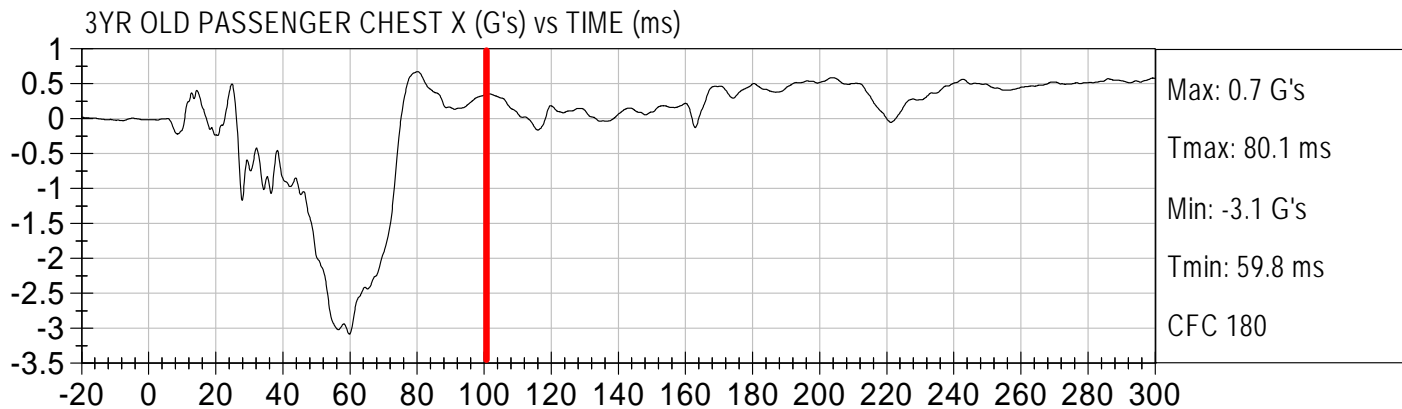


Injury Values Calculated between 0ms and 100ms



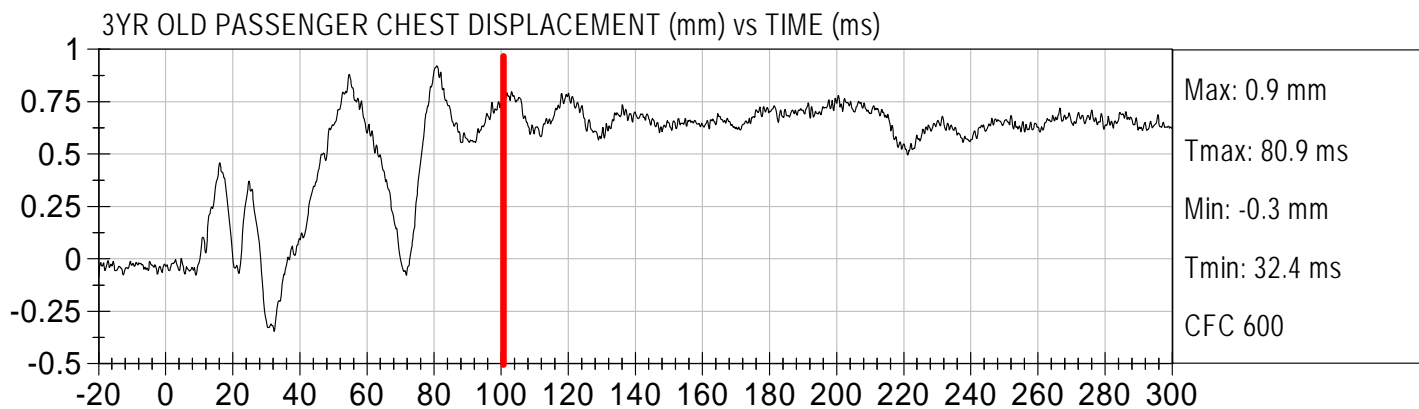
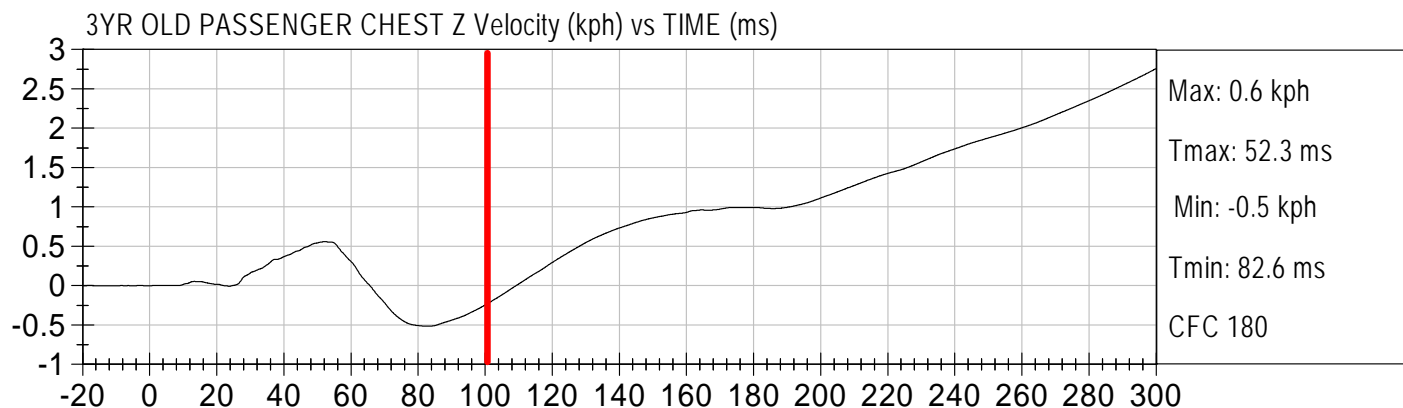
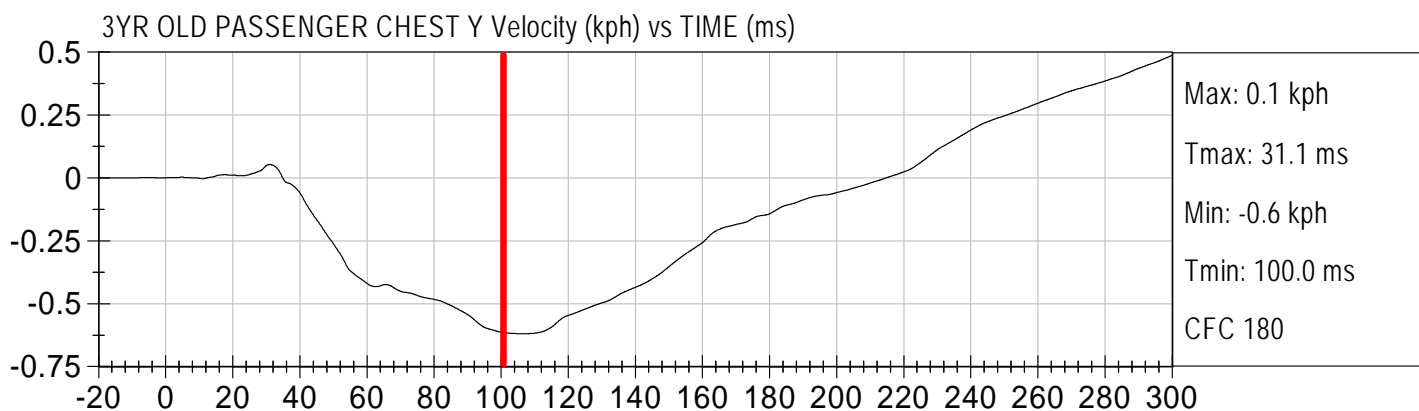
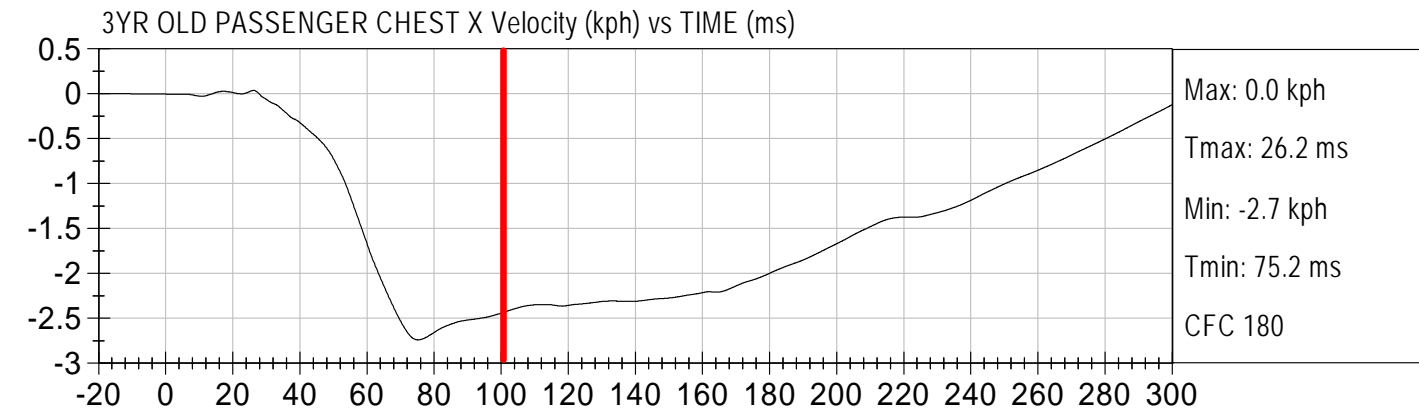


Injury Values Calculated between 0ms and 100ms





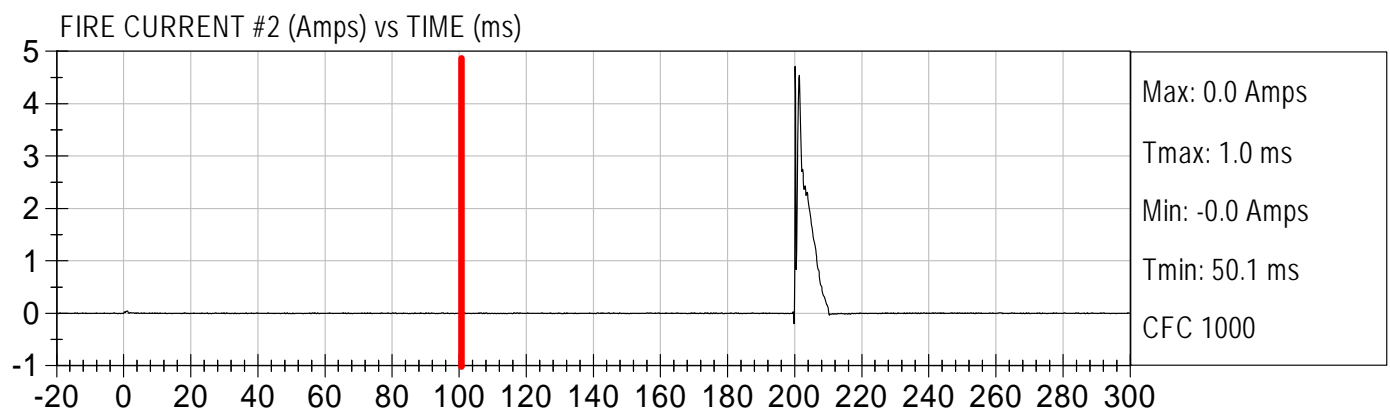
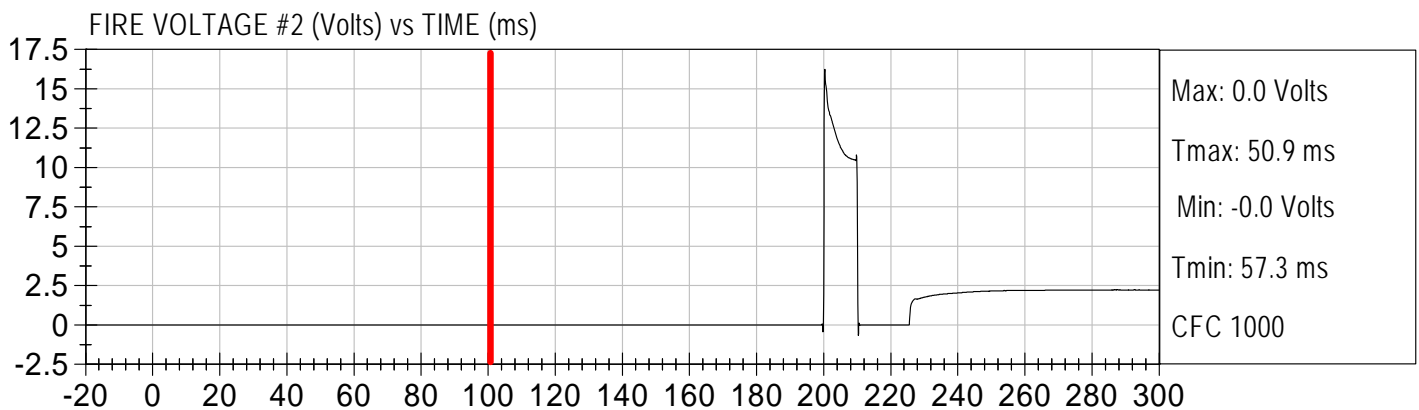
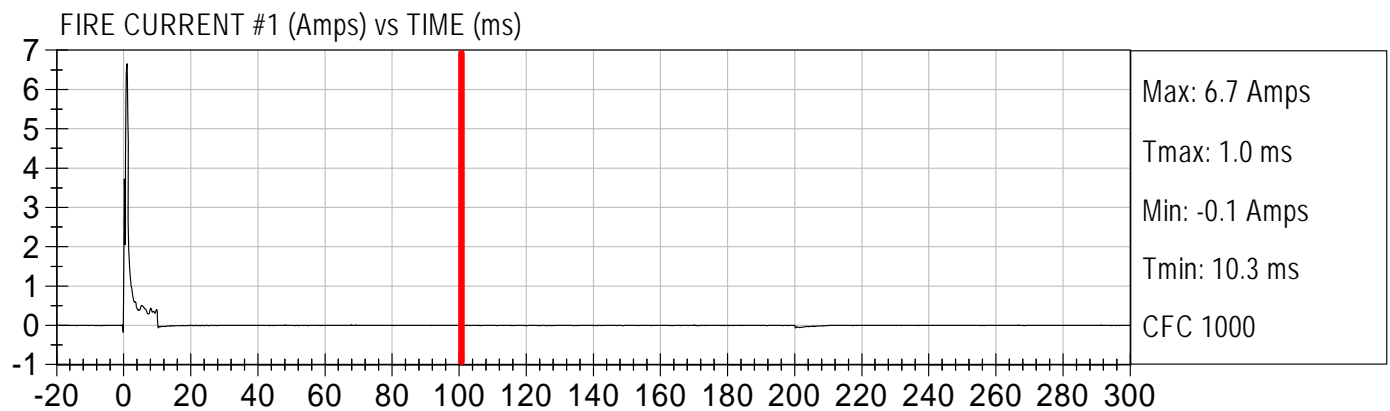
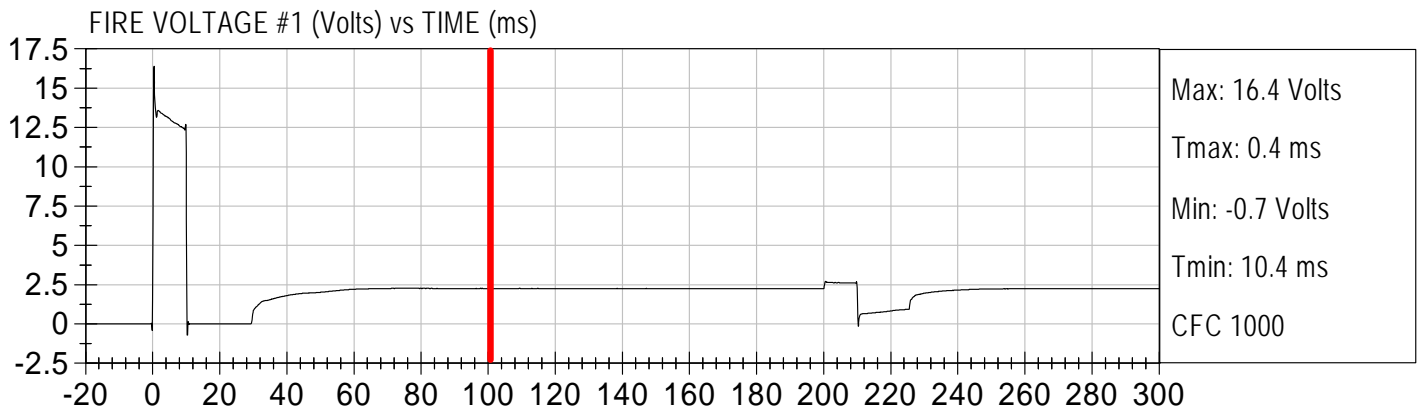
Injury Values Calculated between 0ms and 100ms

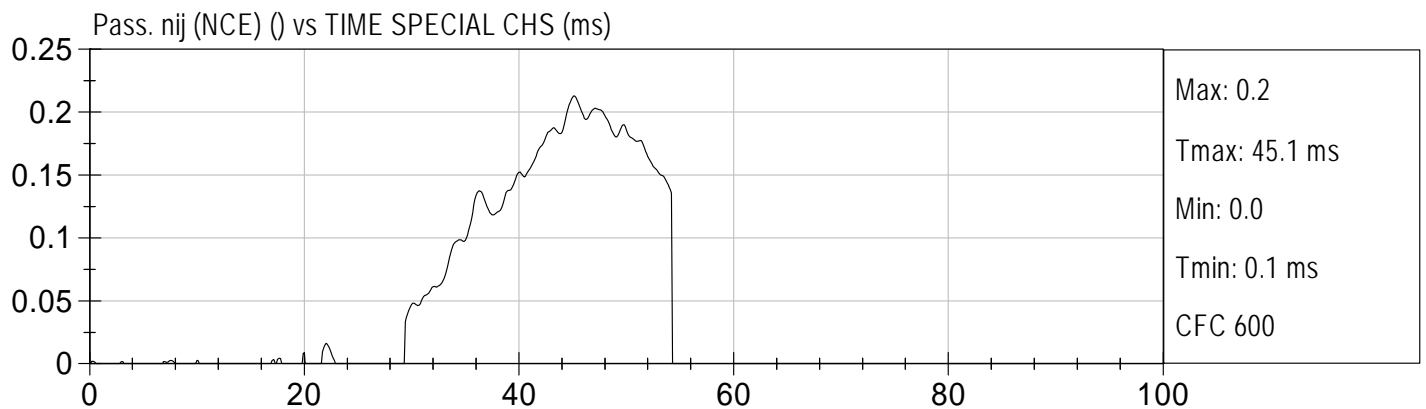
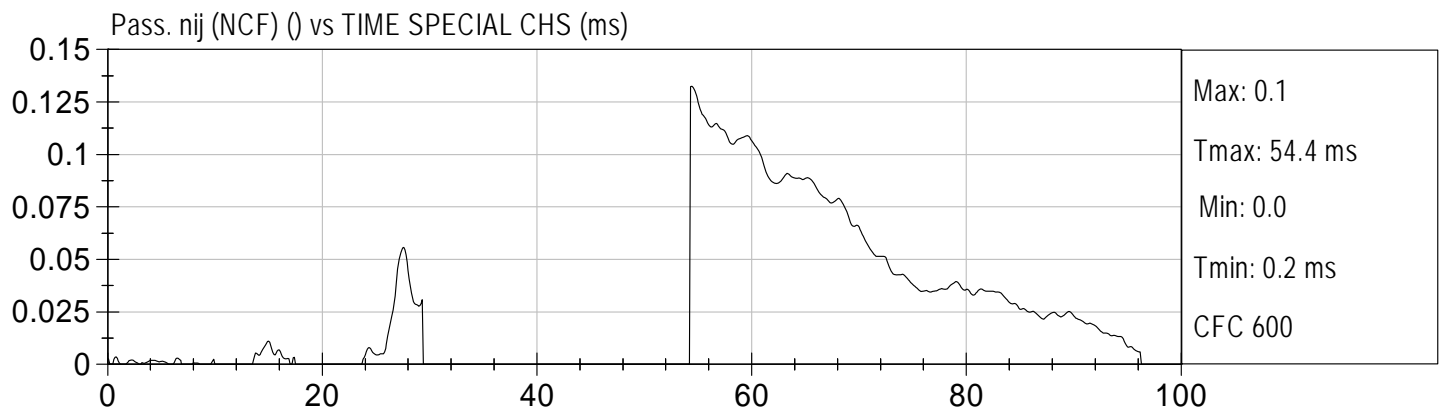
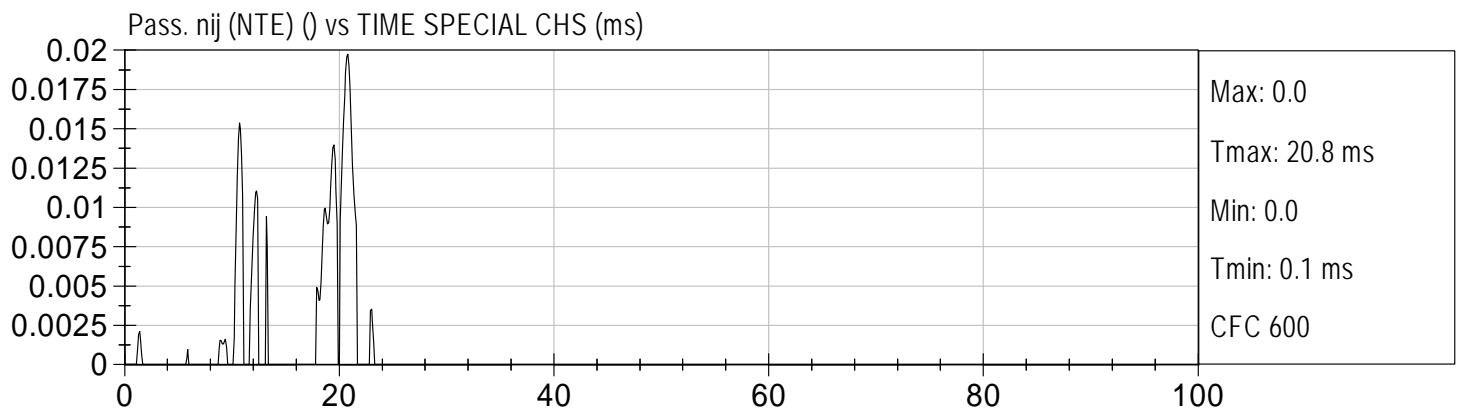
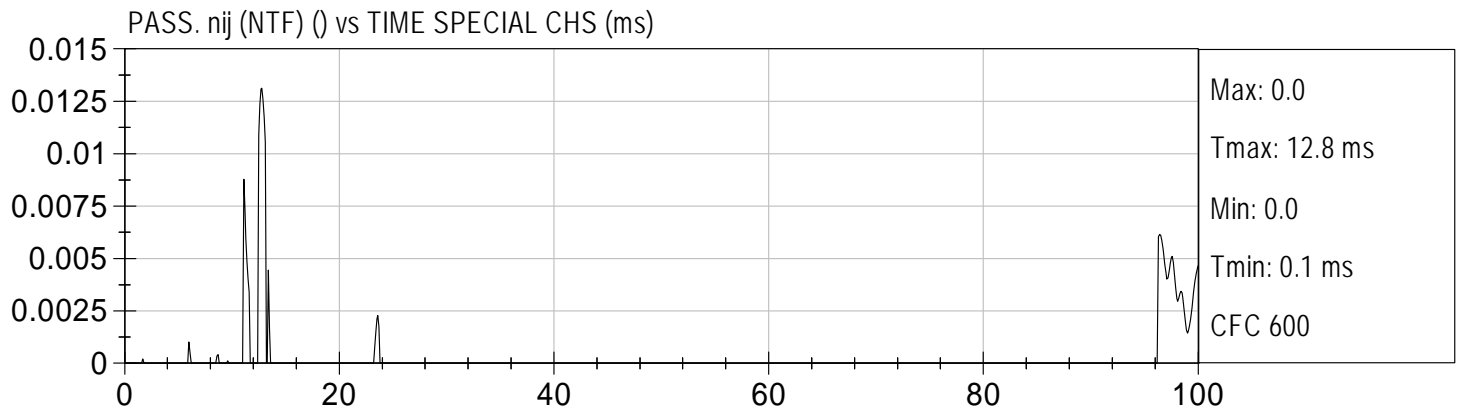






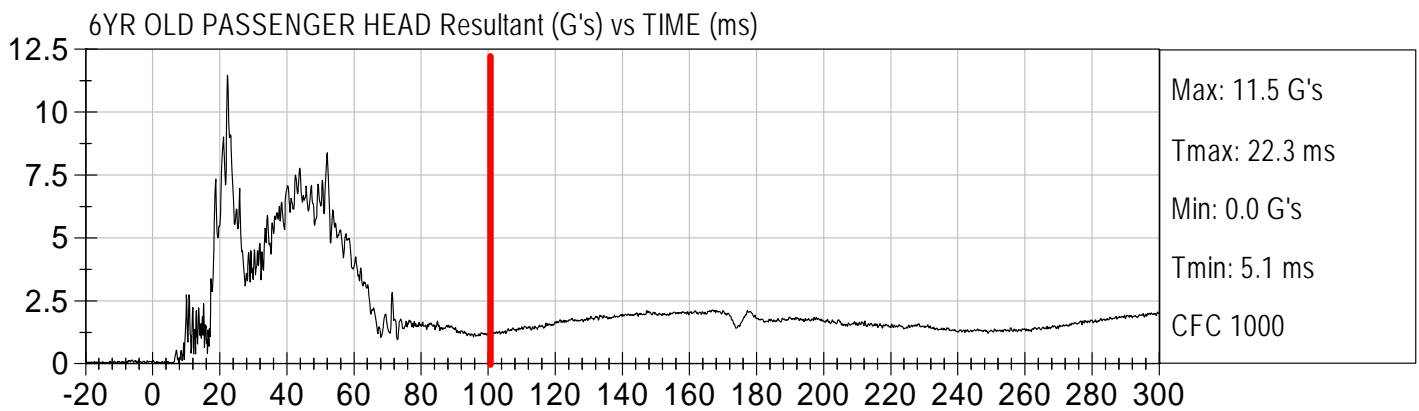
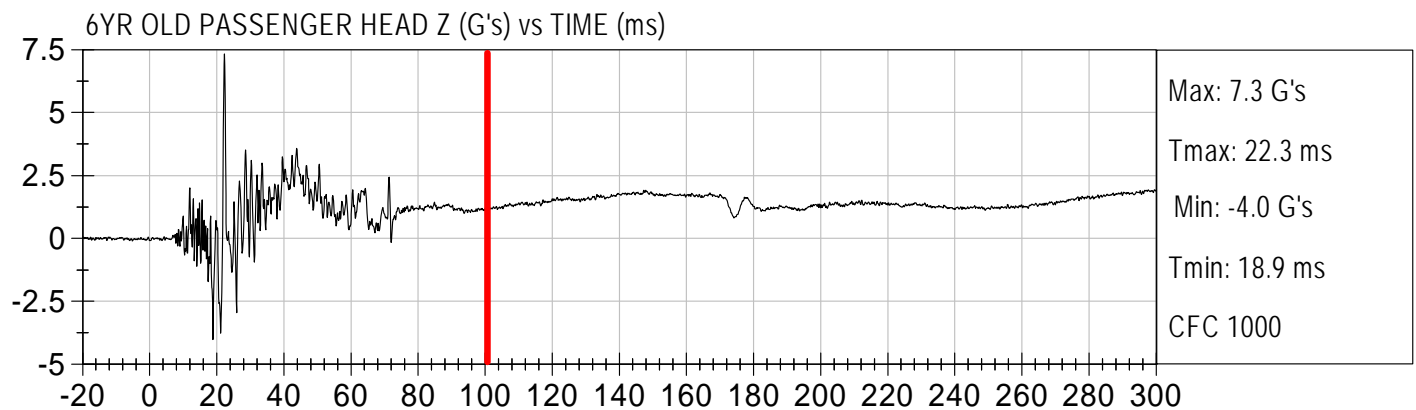
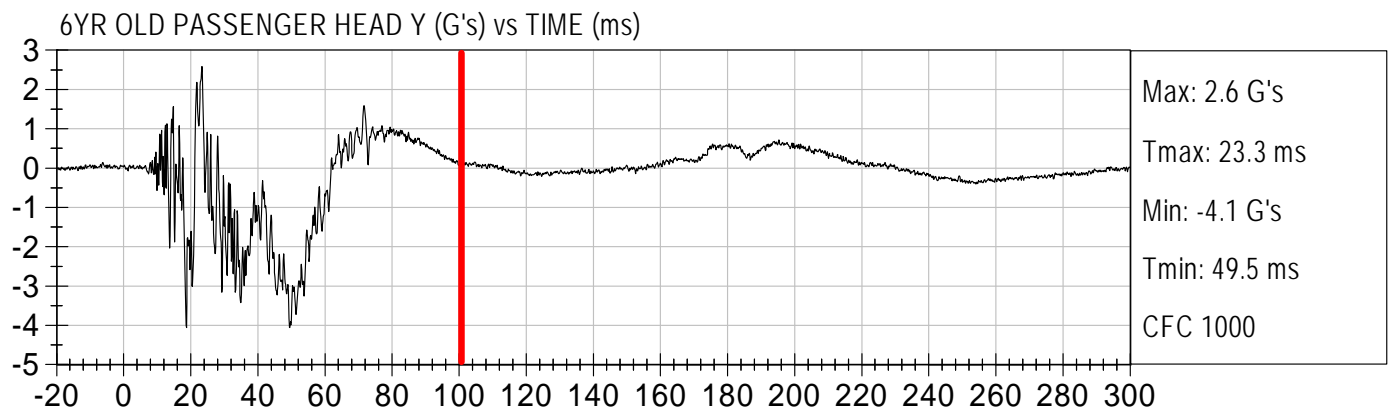
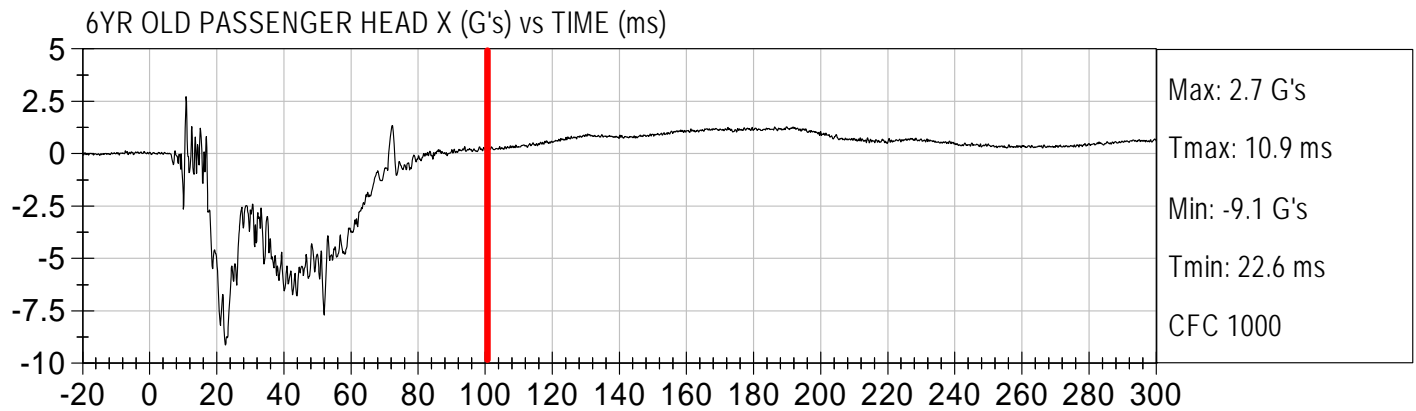
Injury Values Calculated between 0ms and 100ms





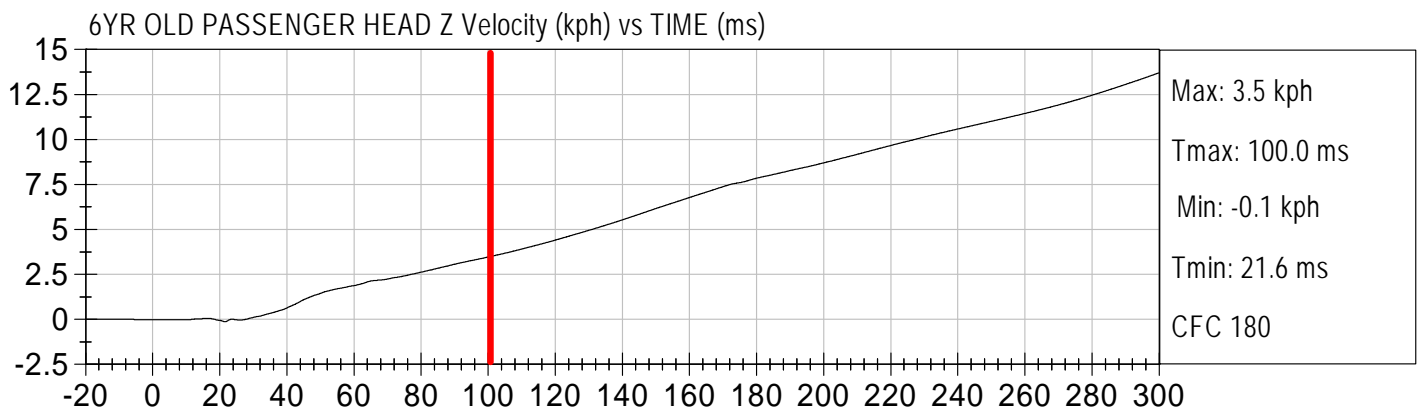
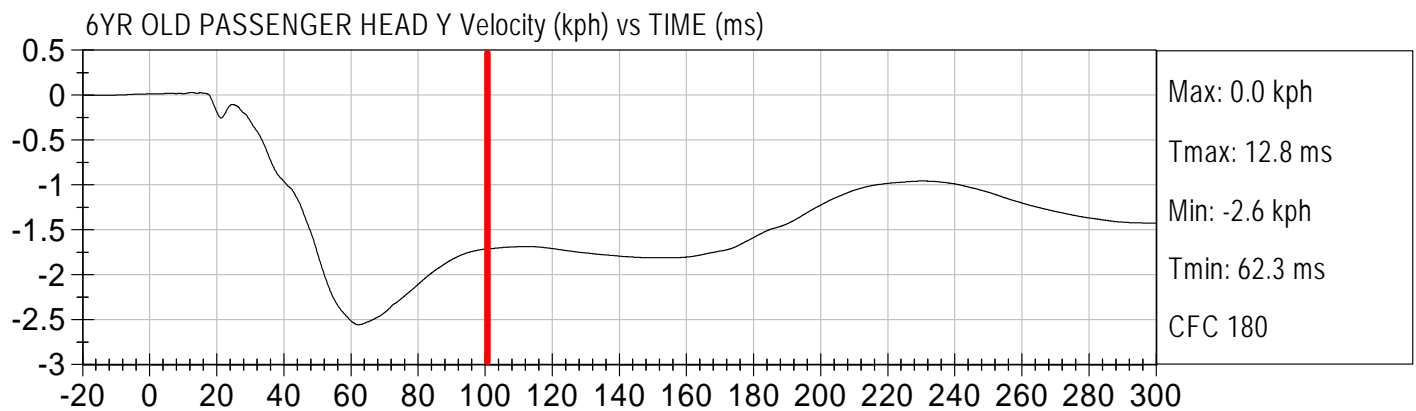
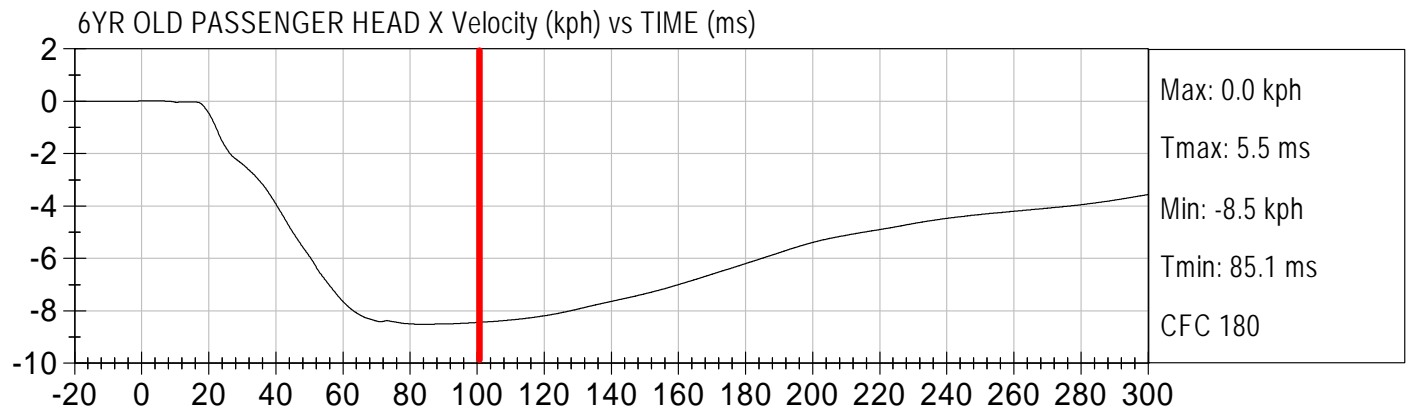


Injury Values Calculated between 0ms and 100ms



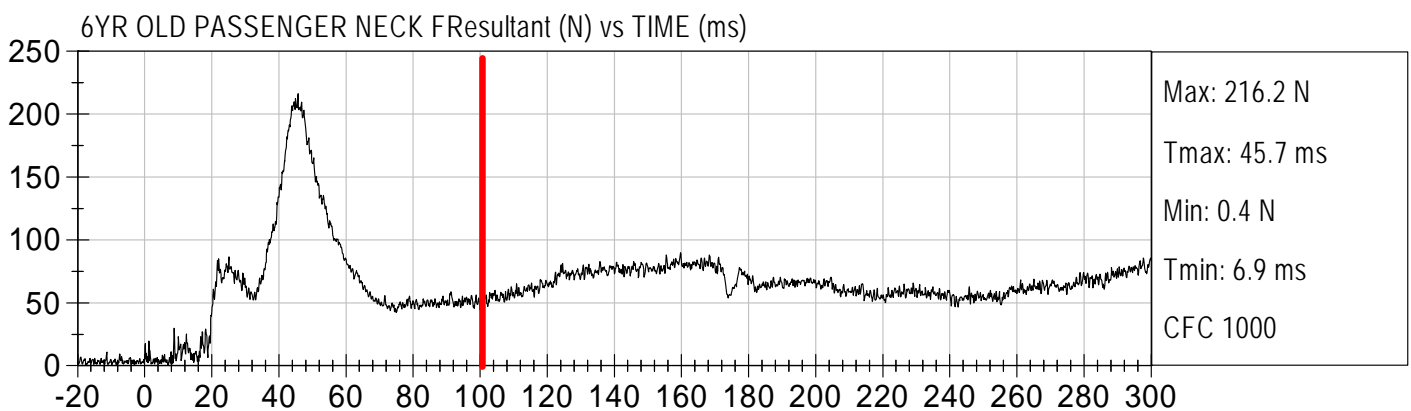
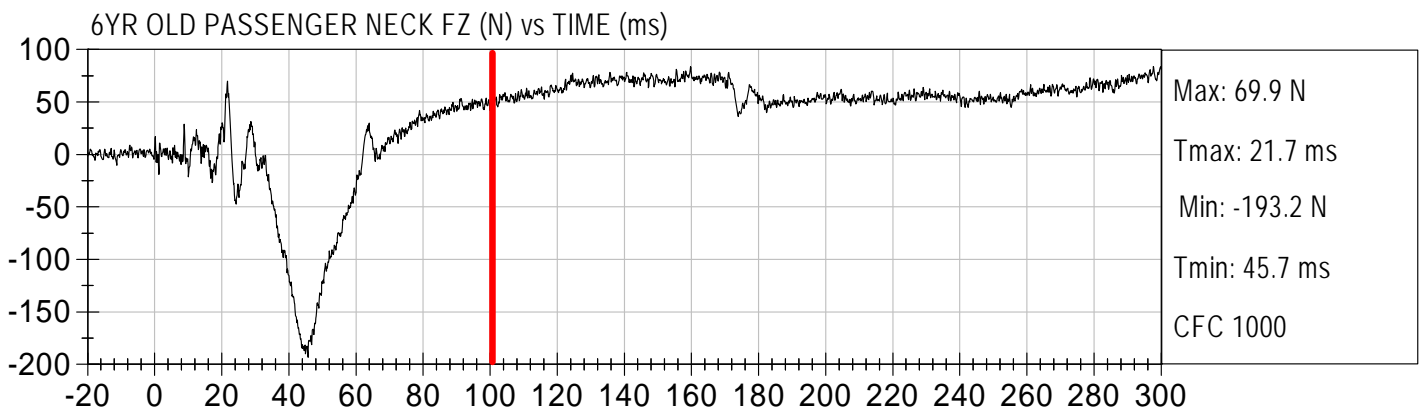
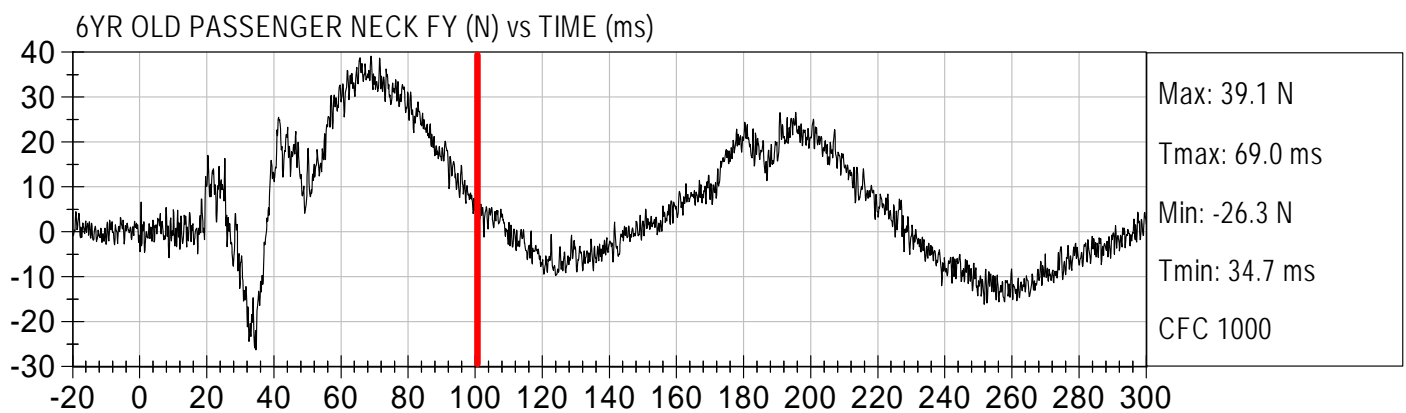
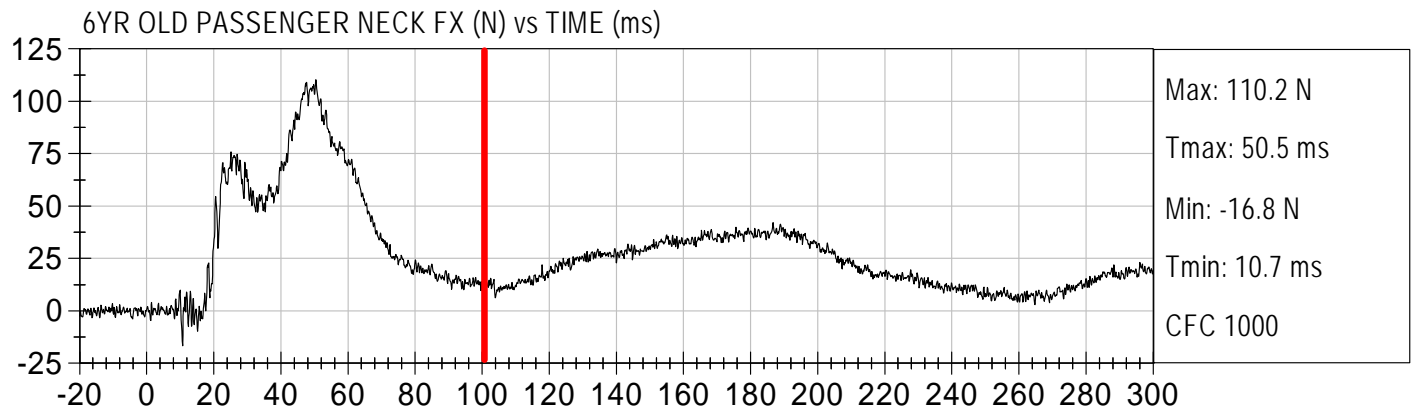


Injury Values Calculated between 0ms and 100ms





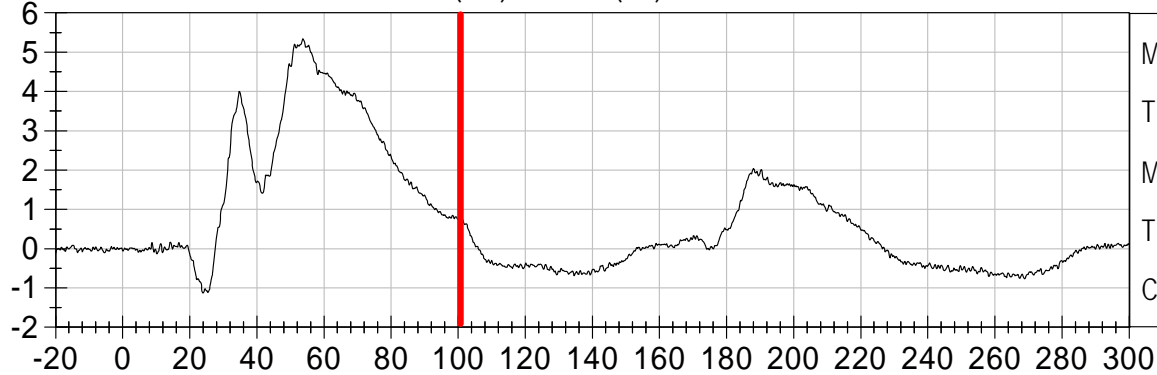
Injury Values Calculated between 0ms and 100ms





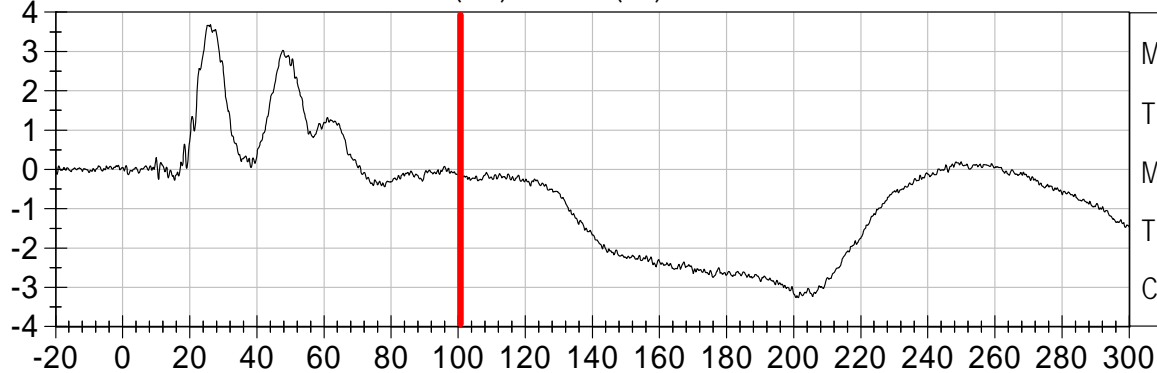
Injury Values Calculated between 0ms and 100ms

6YR OLD PASSENGER NECK MX (Nm) vs TIME (ms)



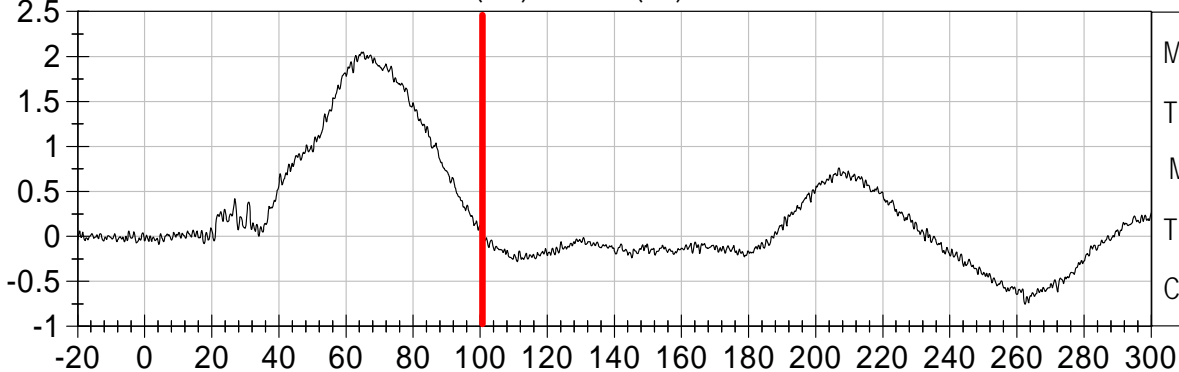
Max: 5.3 Nm  
Tmax: 53.7 ms  
Min: -1.1 Nm  
Tmin: 23.9 ms  
CFC 600

6YR OLD PASSENGER NECK MY (Nm) vs TIME (ms)



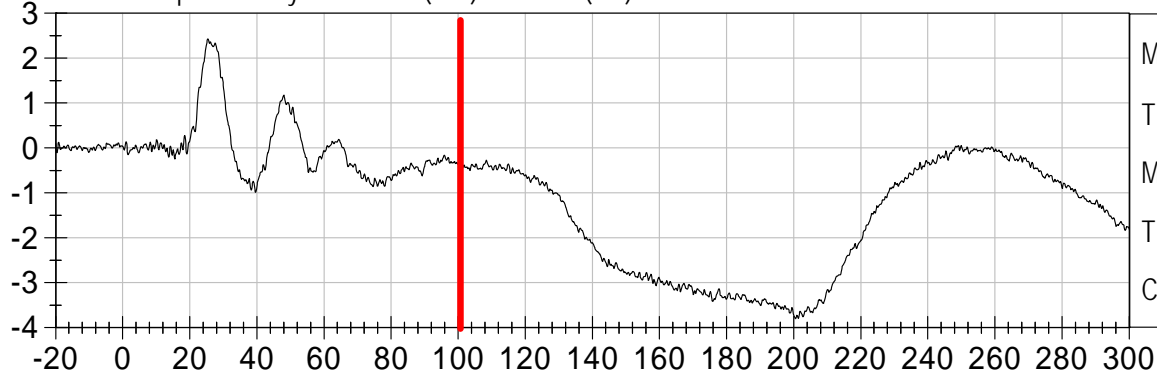
Max: 3.7 Nm  
Tmax: 26.2 ms  
Min: -0.4 Nm  
Tmin: 78.1 ms  
CFC 600

6YR OLD PASSENGER NECK MZ (Nm) vs TIME (ms)



Max: 2.0 Nm  
Tmax: 65.1 ms  
Min: -0.1 Nm  
Tmin: 4.2 ms  
CFC 600

Pass. Occipital Condyle Moment (Nm) vs TIME (ms)

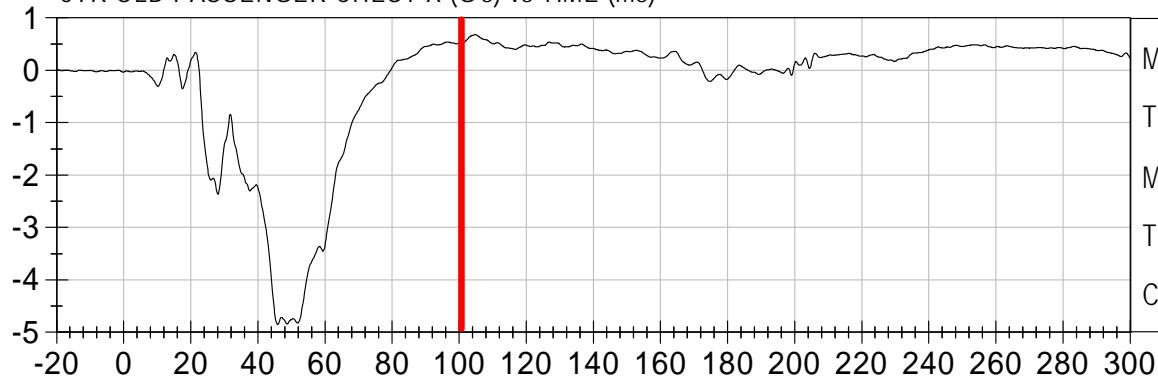


Max: 2.4 Nm  
Tmax: 25.4 ms  
Min: -1.0 Nm  
Tmin: 39.6 ms  
CFC 600



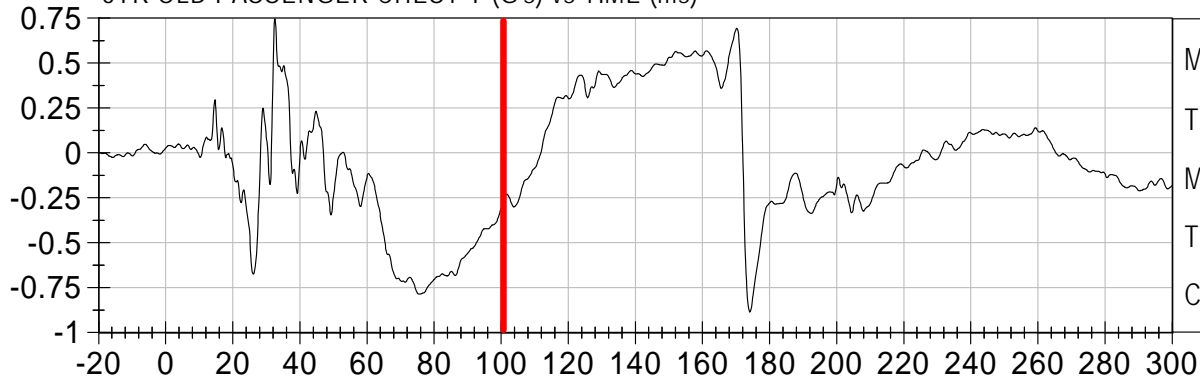
Injury Values Calculated between 0ms and 100ms

6YR OLD PASSENGER CHEST X (G's) vs TIME (ms)



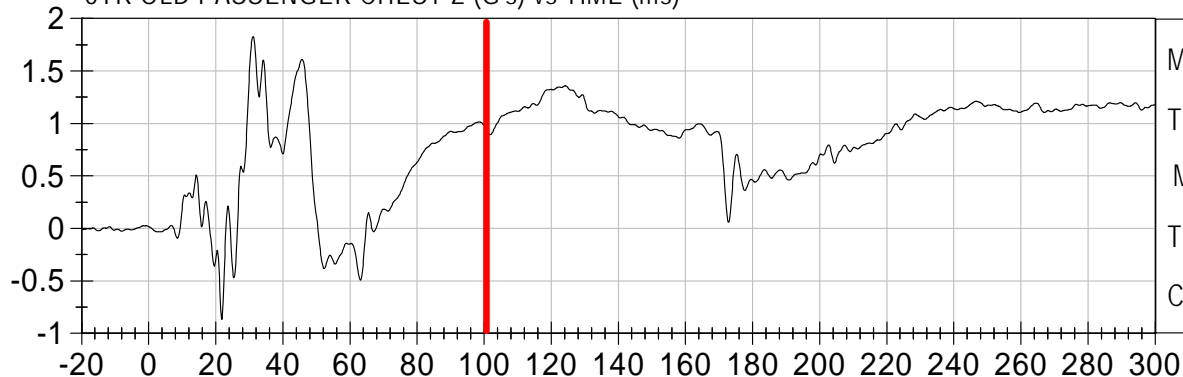
Max: 0.5 G's  
Tmax: 96.8 ms  
Min: -4.9 G's  
Tmin: 45.9 ms  
CFC 180

6YR OLD PASSENGER CHEST Y (G's) vs TIME (ms)



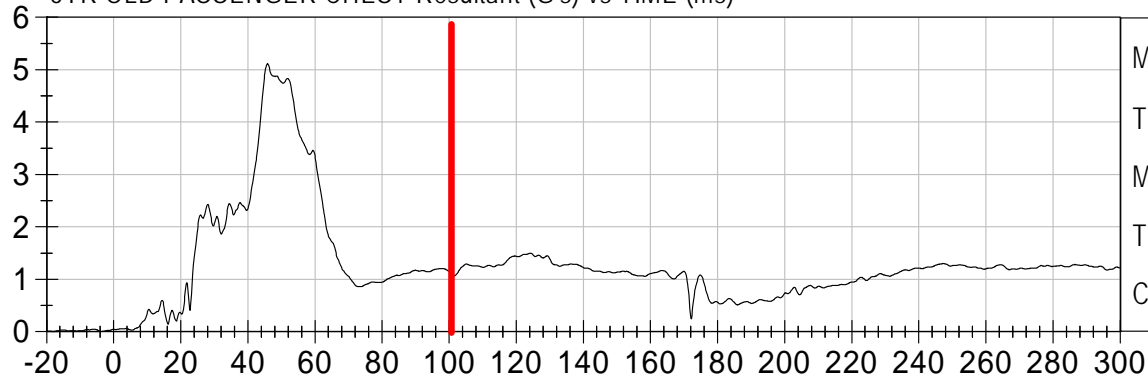
Max: 0.7 G's  
Tmax: 32.6 ms  
Min: -0.8 G's  
Tmin: 75.8 ms  
CFC 180

6YR OLD PASSENGER CHEST Z (G's) vs TIME (ms)



Max: 1.8 G's  
Tmax: 31.1 ms  
Min: -0.9 G's  
Tmin: 21.8 ms  
CFC 180

6YR OLD PASSENGER CHEST Resultant (G's) vs TIME (ms)

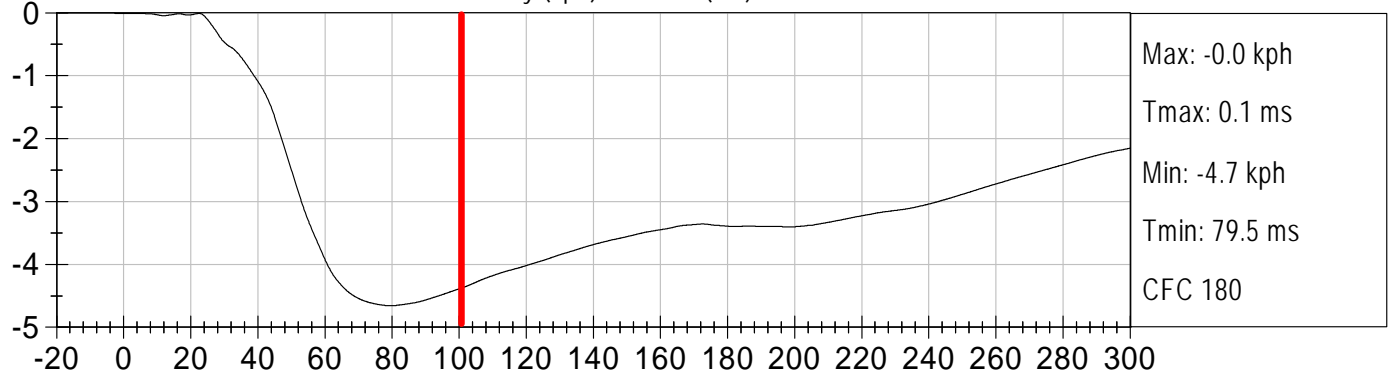


Max: 5.1 G's  
Tmax: 45.9 ms  
Min: 0.0 G's  
Tmin: 5.5 ms  
CFC 180

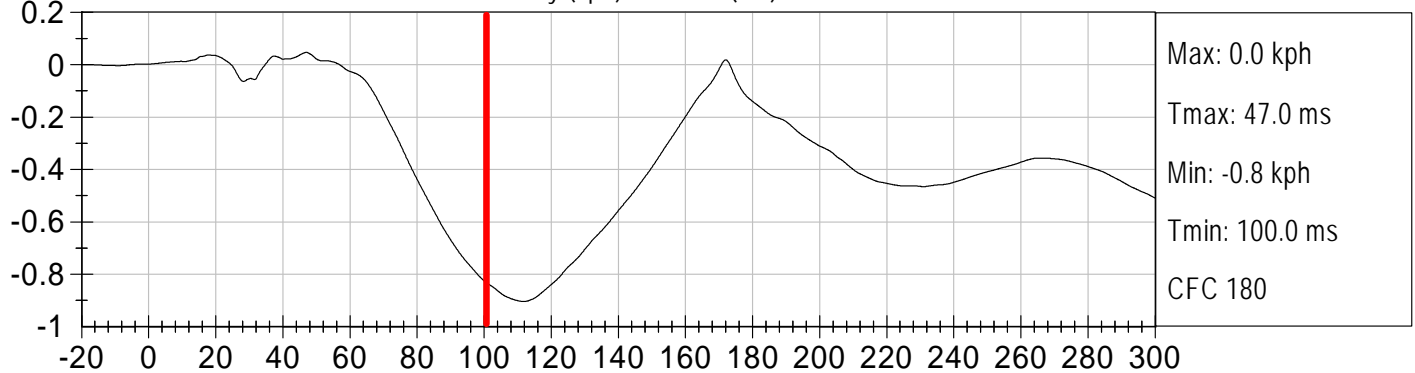


Injury Values Calculated between 0ms and 100ms

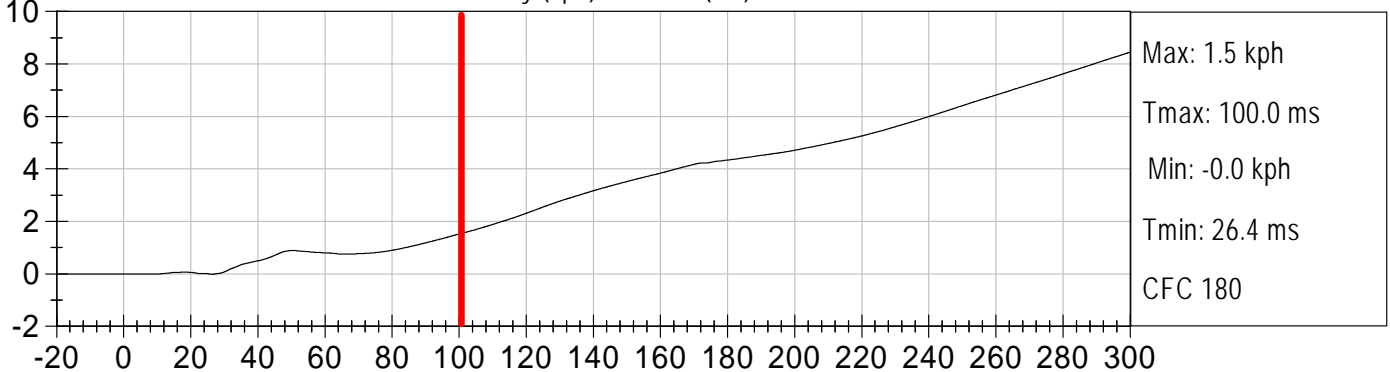
6YR OLD PASSENGER CHEST X Velocity (kph) vs TIME (ms)



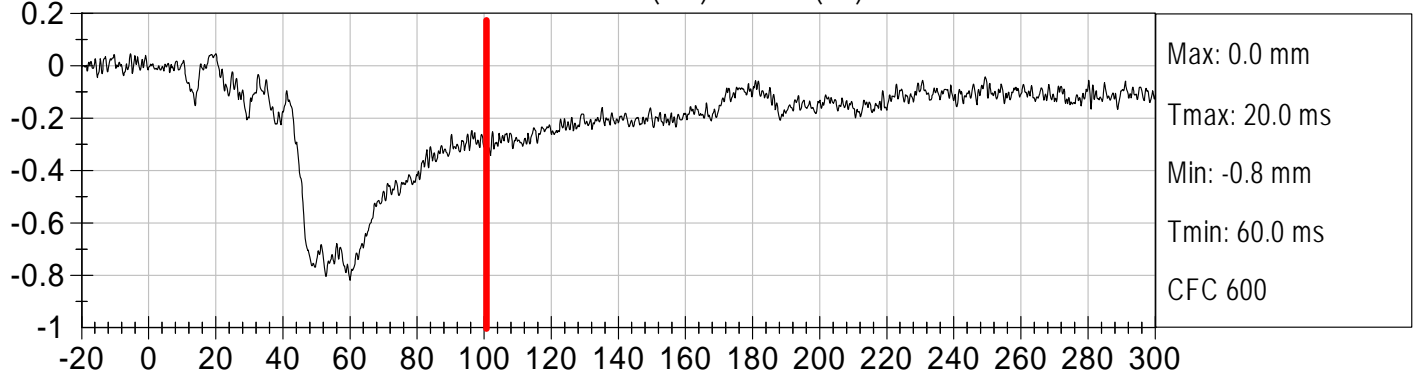
6YR OLD PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



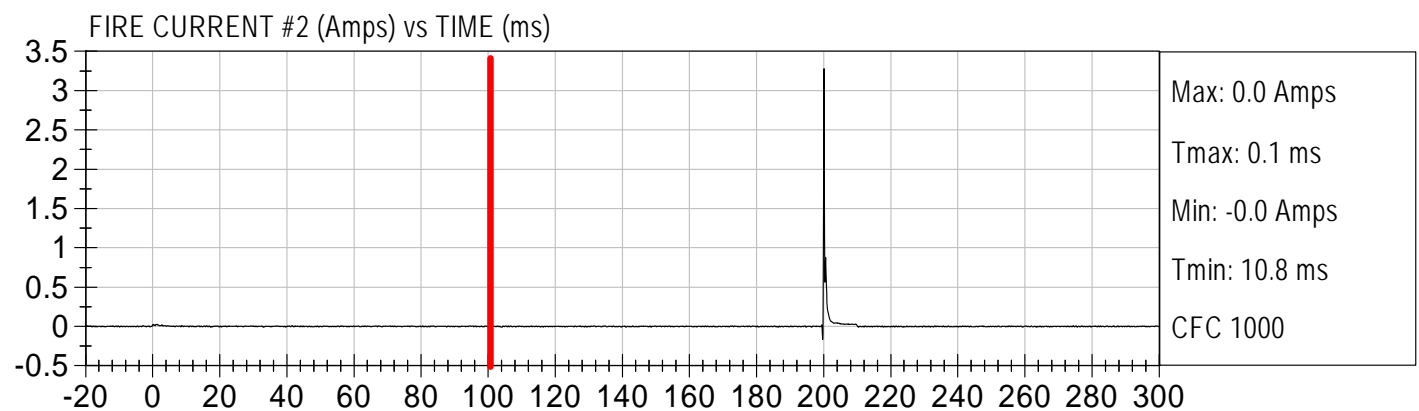
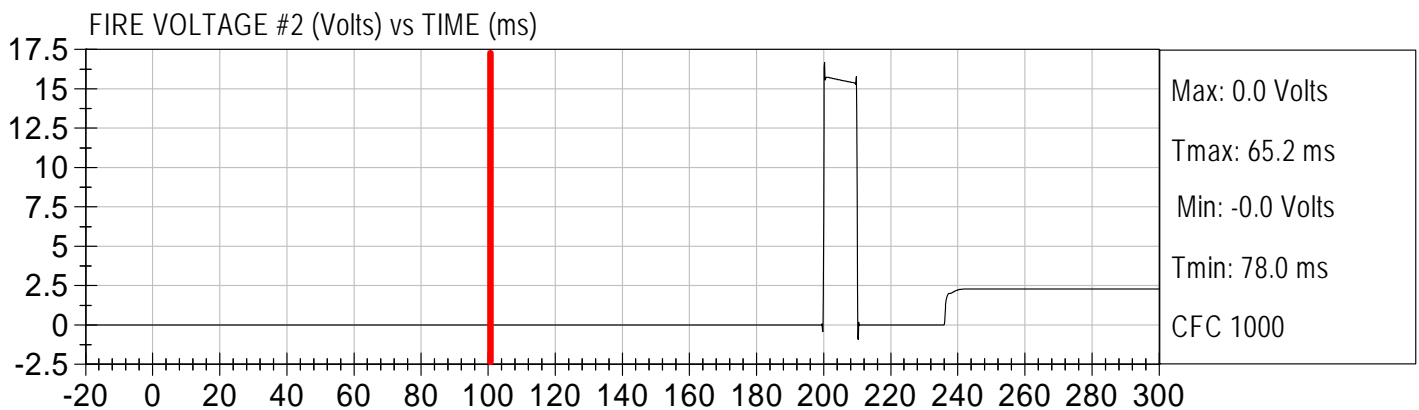
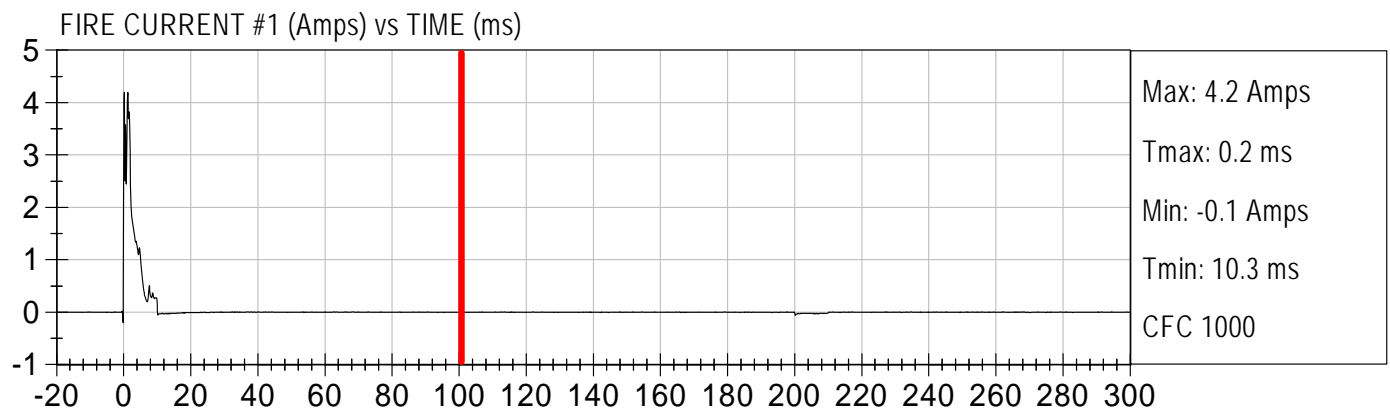
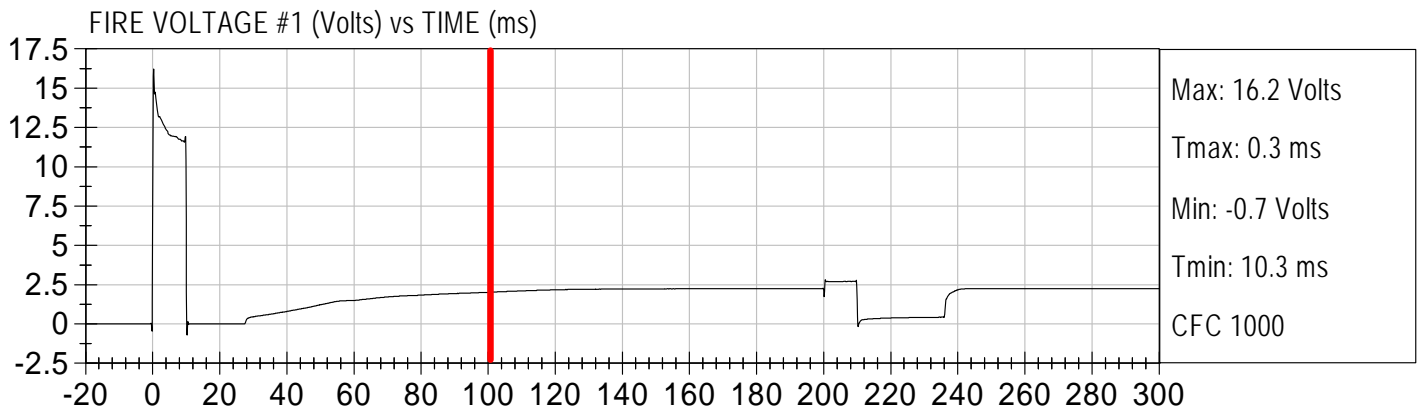
6YR OLD PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)

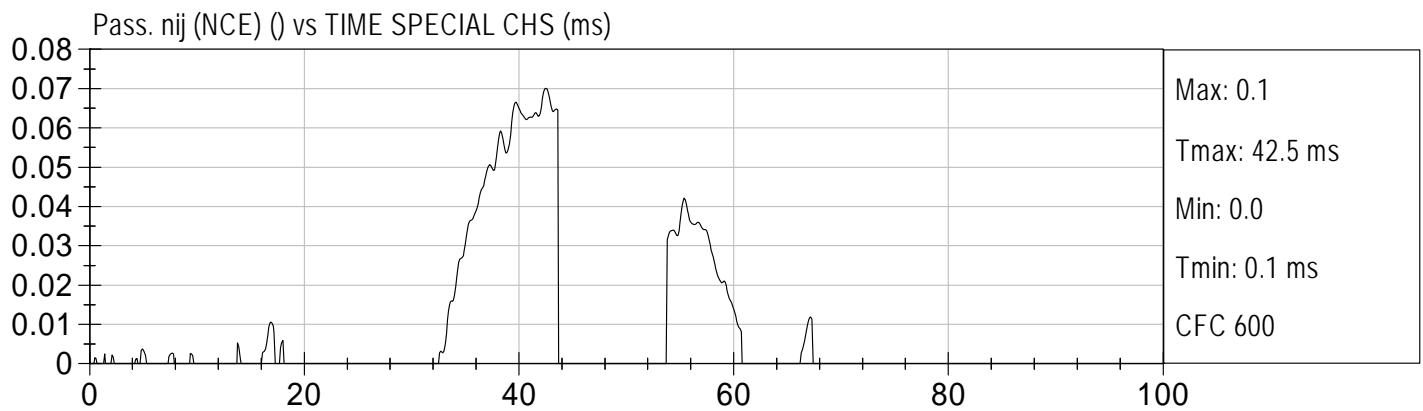
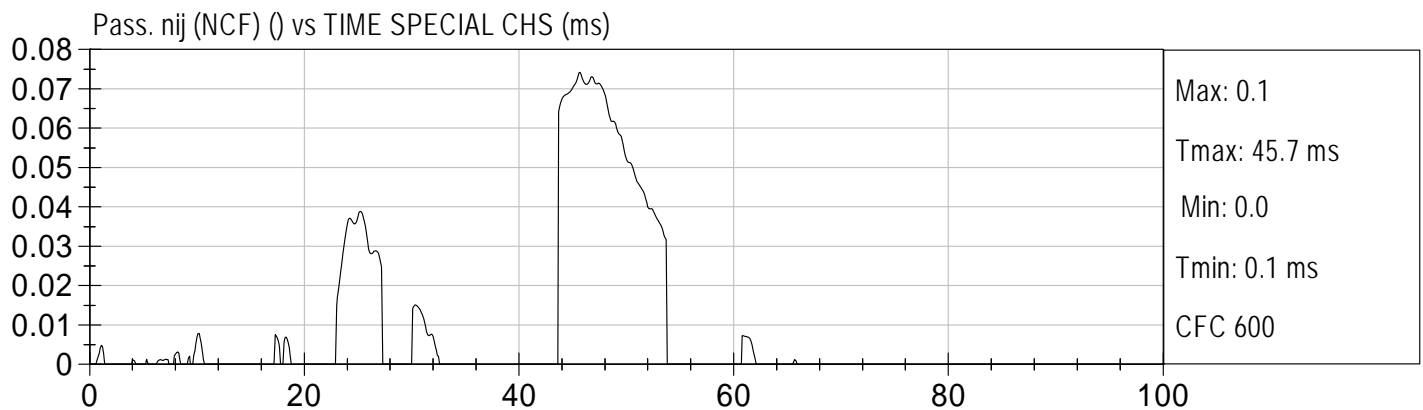
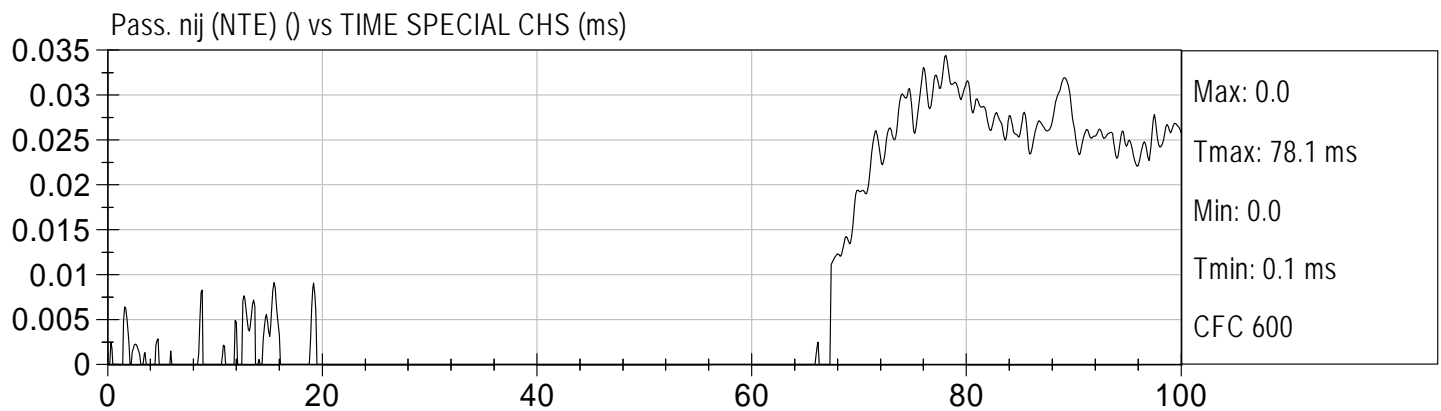
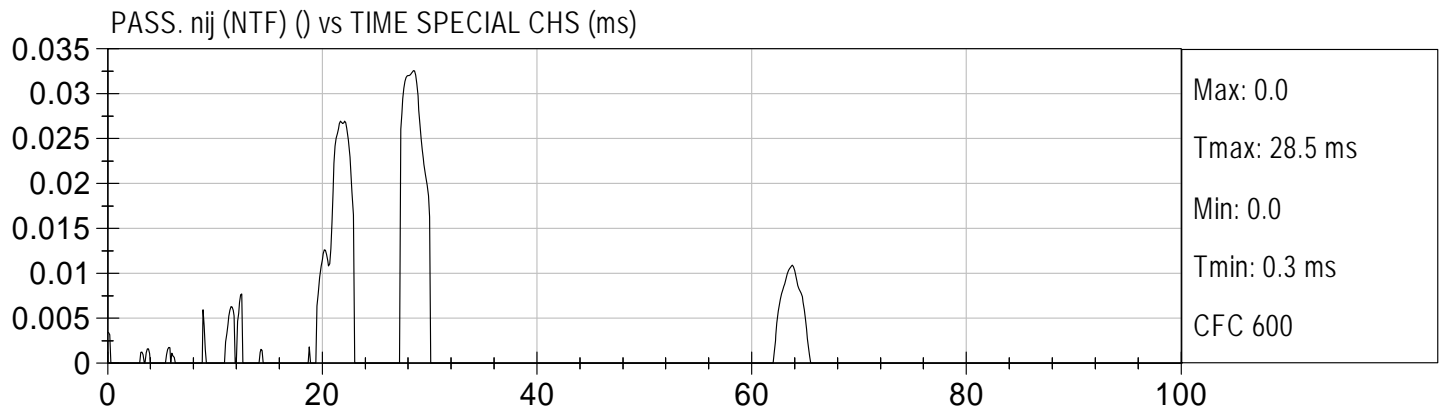






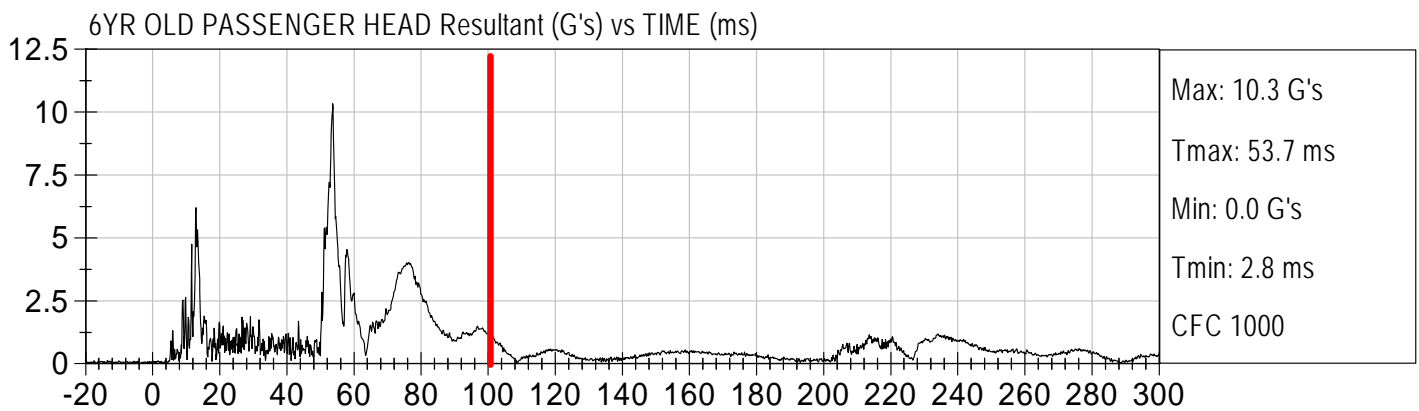
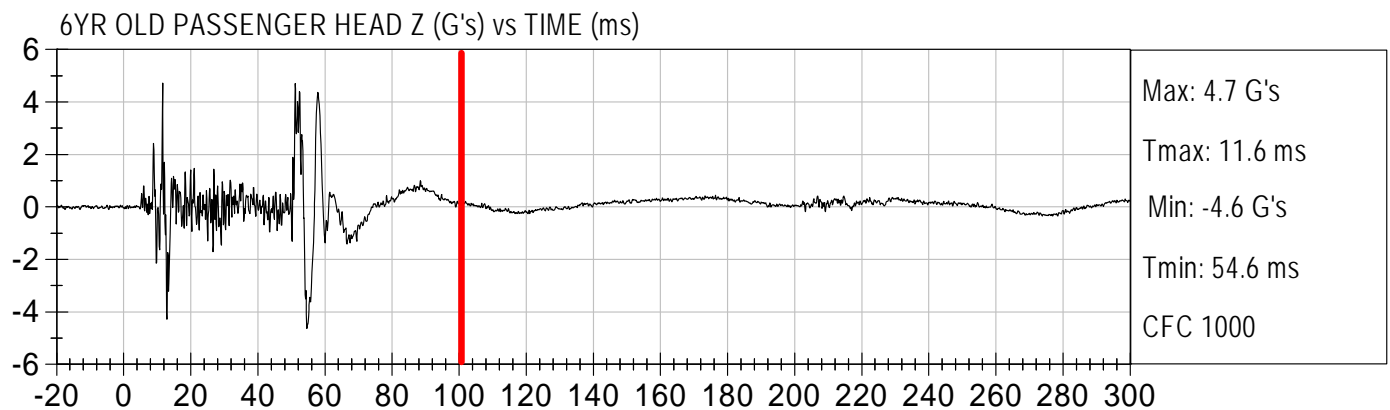
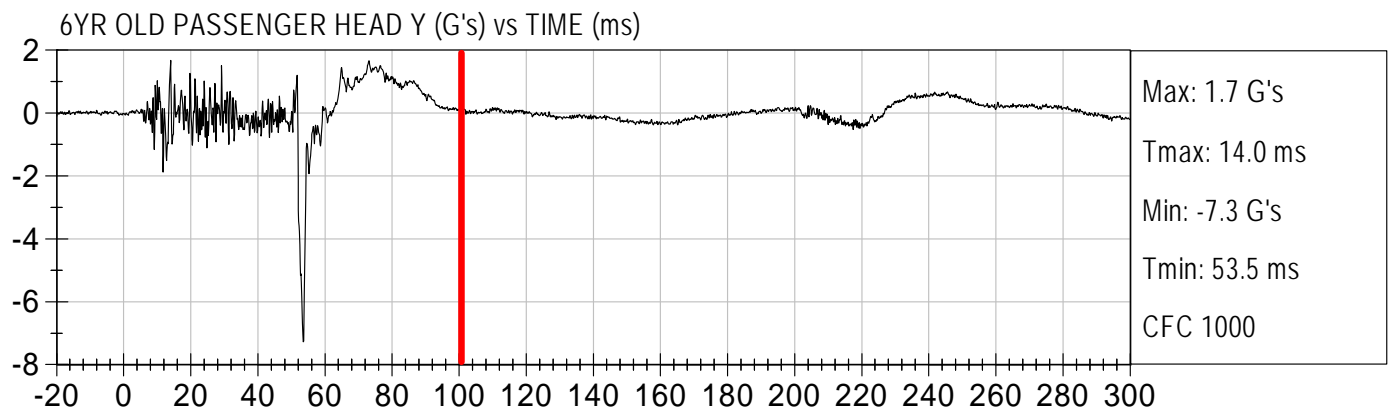
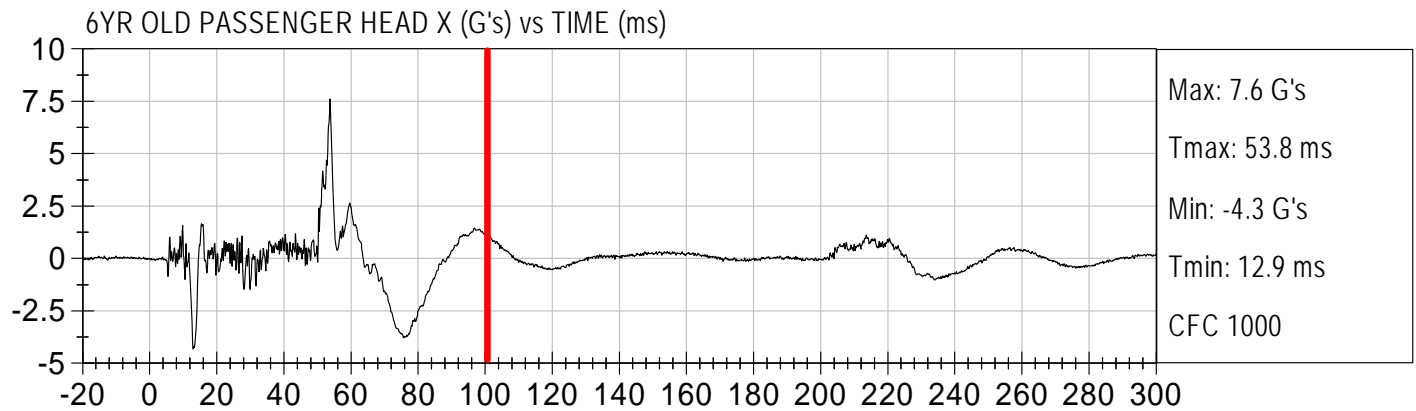
Injury Values Calculated between 0ms and 100ms





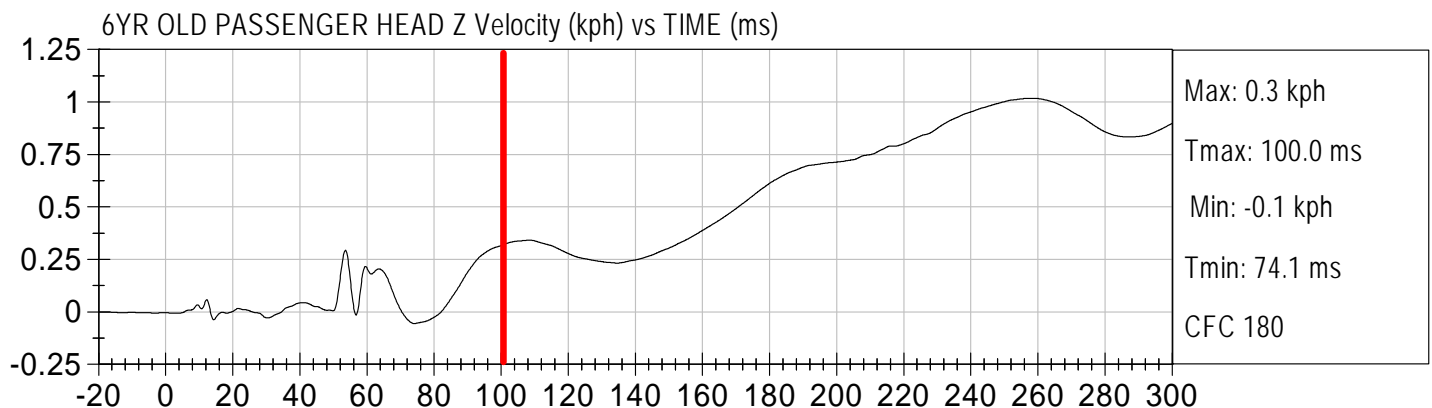
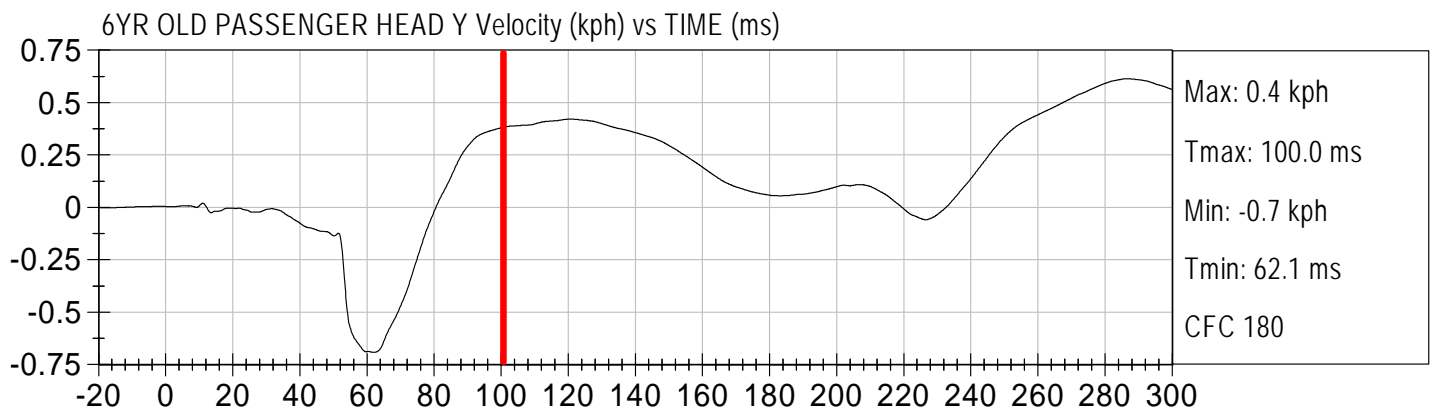
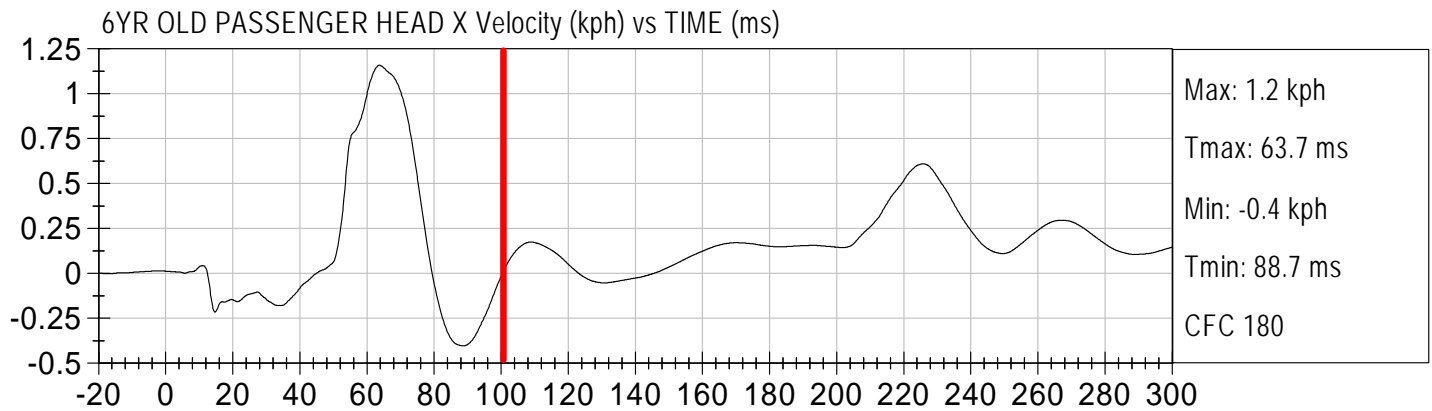


Injury Values Calculated between 0ms and 100ms





Injury Values Calculated between 0ms and 100ms

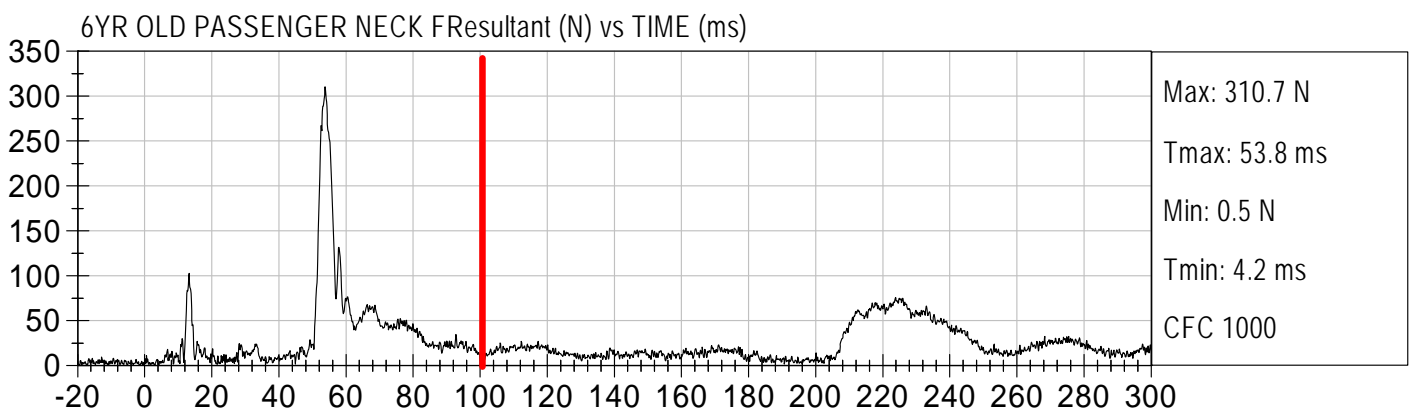
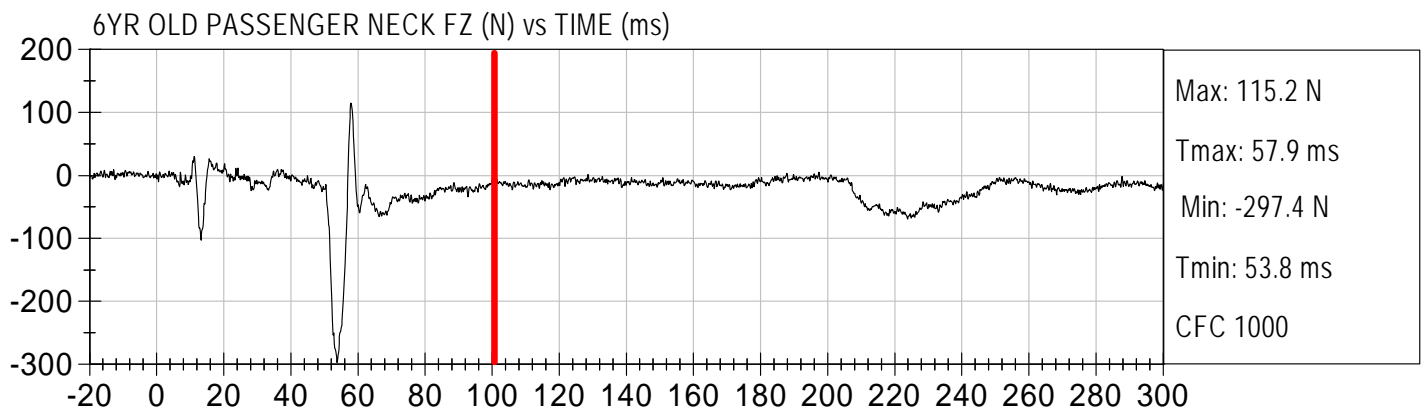
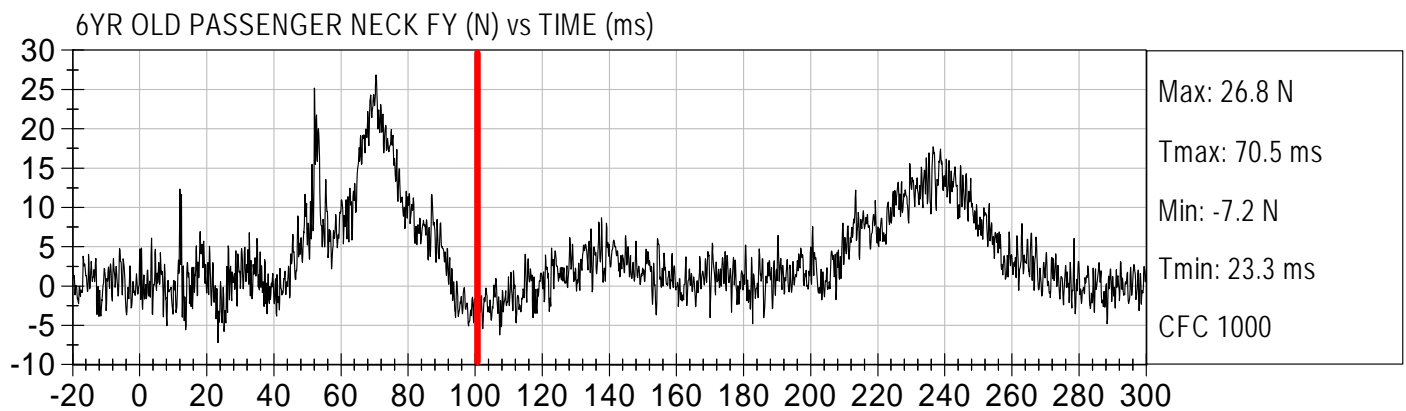
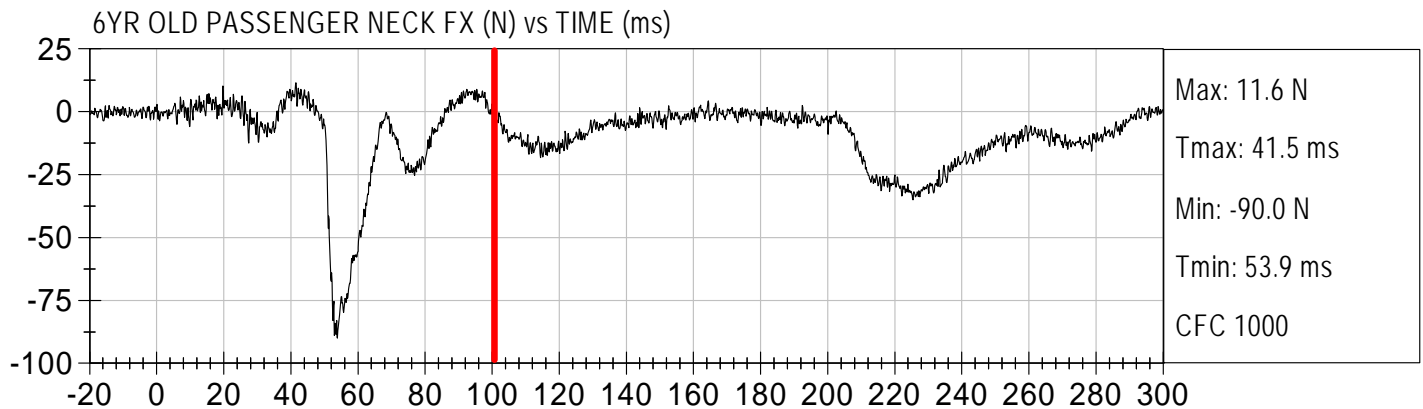




LOW RISK DEPLOYMENT  
2008 Smart fortwo (C80511) (6YO P2)

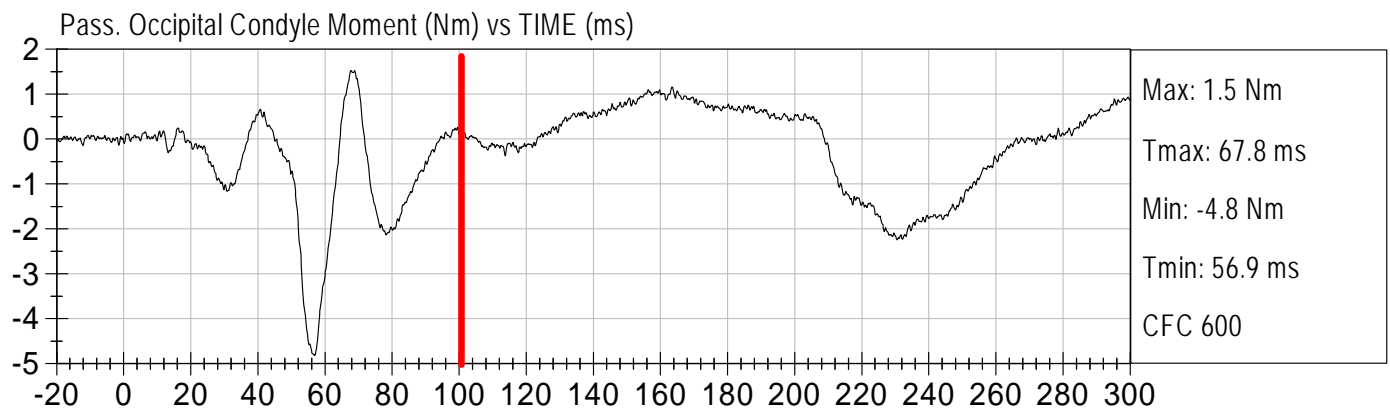
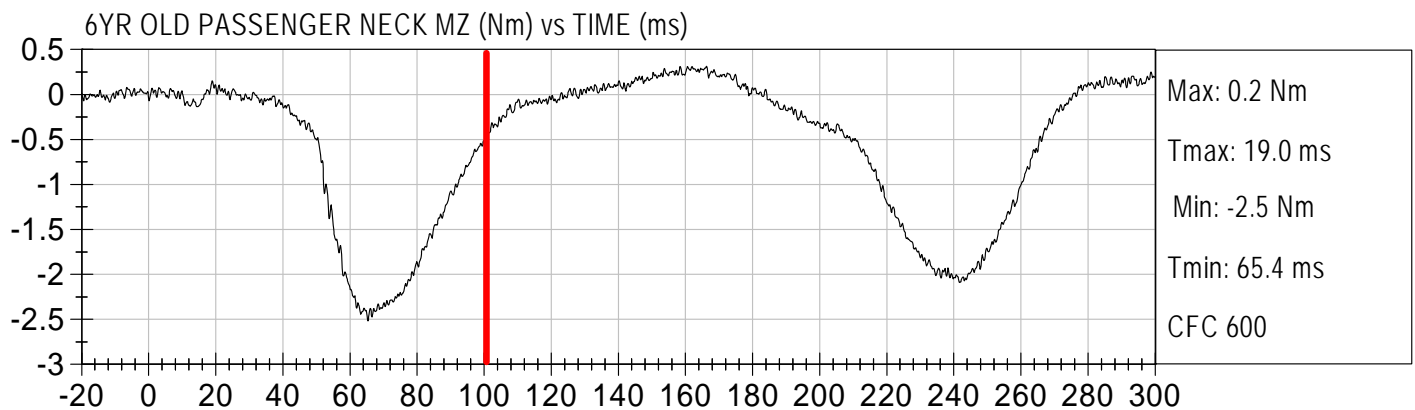
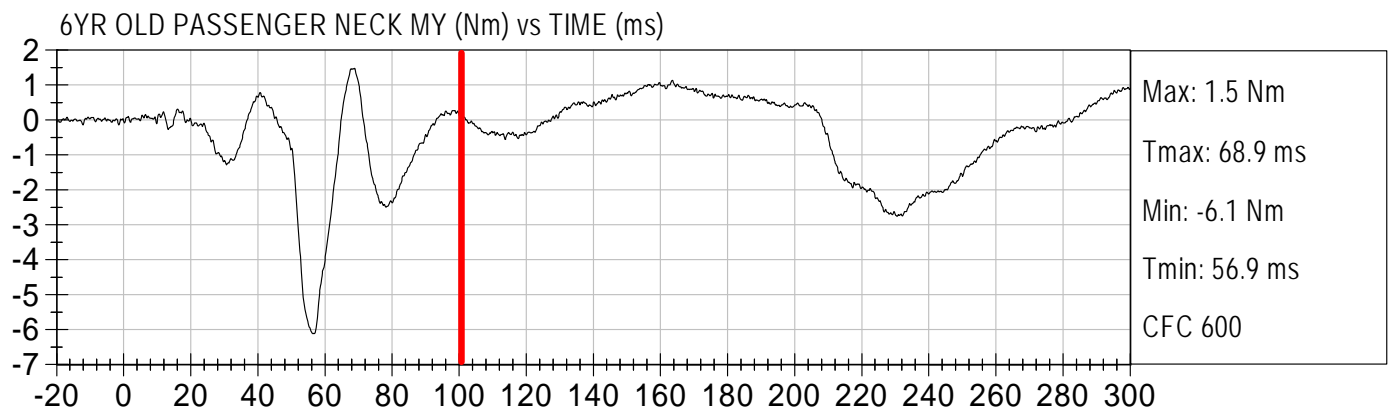
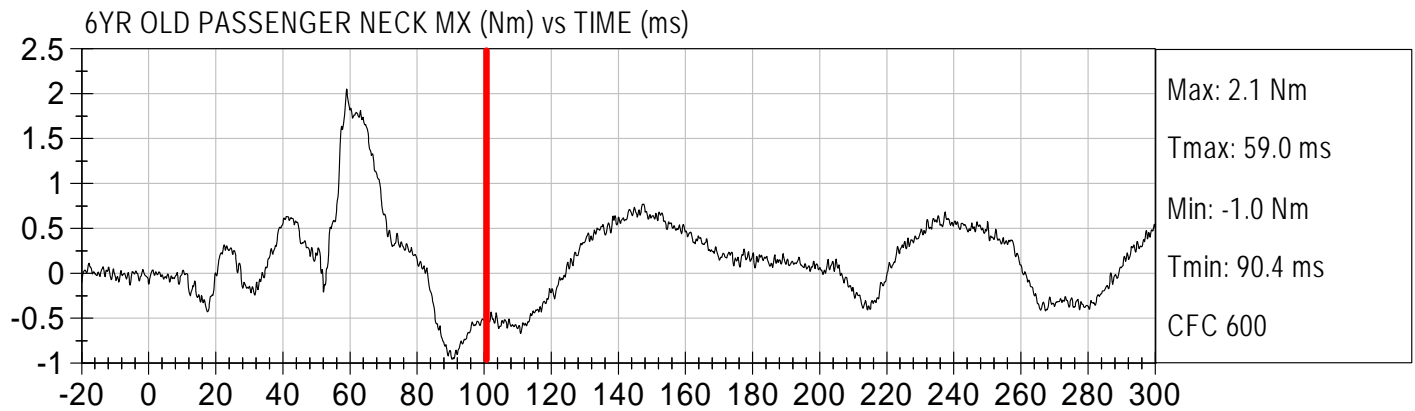
Test Date: 4/9/08  
Speed: 0.0 mph ( 0.0 km/h)

Injury Values Calculated between 0ms and 100ms





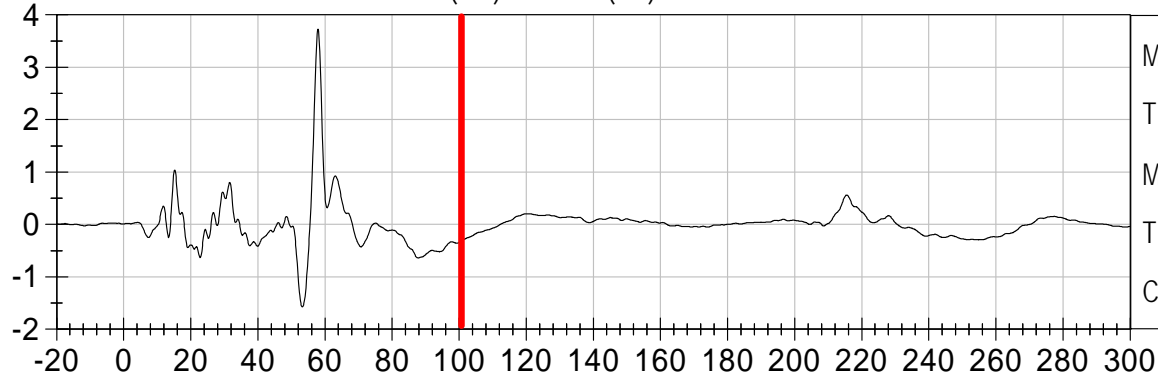
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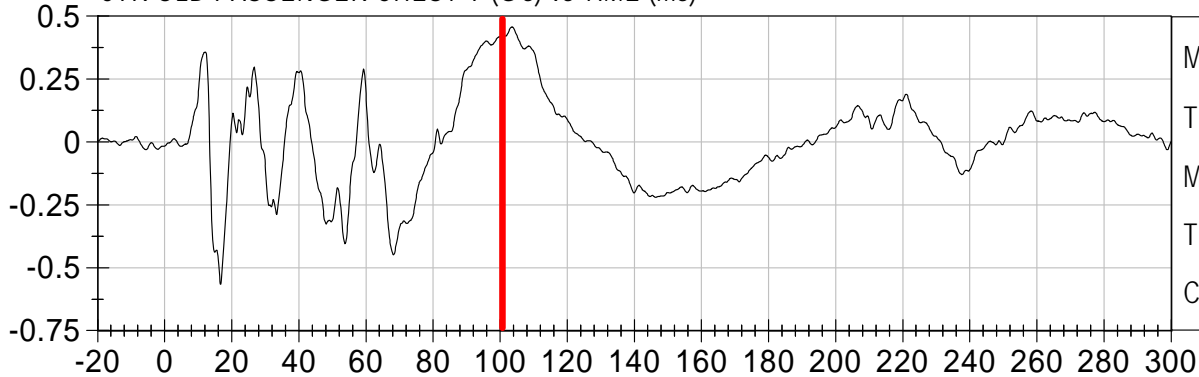
Injury Values Calculated between 0ms and 100ms

6YR OLD PASSENGER CHEST X (G's) vs TIME (ms)



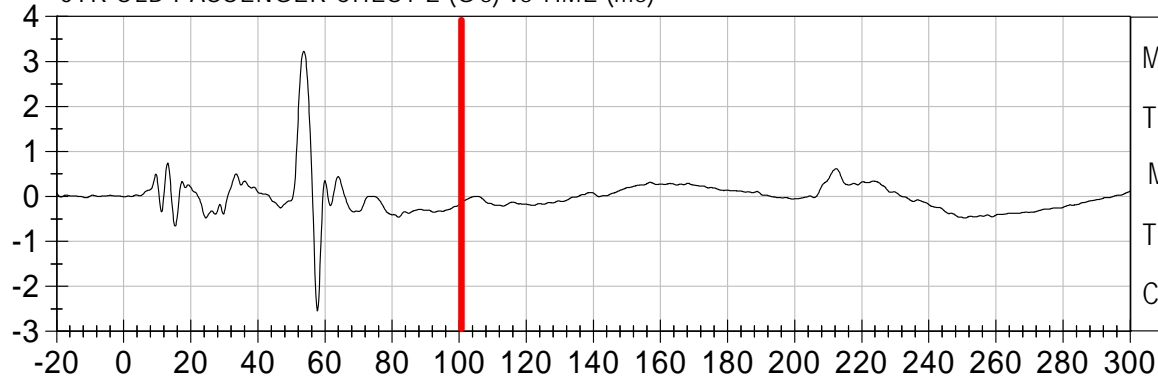
Max: 3.7 G's  
Tmax: 57.9 ms  
Min: -1.6 G's  
Tmin: 53.2 ms  
CFC 180

6YR OLD PASSENGER CHEST Y (G's) vs TIME (ms)



Max: 0.4 G's  
Tmax: 100.0 ms  
Min: -0.6 G's  
Tmin: 16.7 ms  
CFC 180

6YR OLD PASSENGER CHEST Z (G's) vs TIME (ms)



Max: 3.2 G's  
Tmax: 53.7 ms  
Min: -2.5 G's  
Tmin: 57.7 ms  
CFC 180

6YR OLD PASSENGER CHEST Resultant (G's) vs TIME (ms)



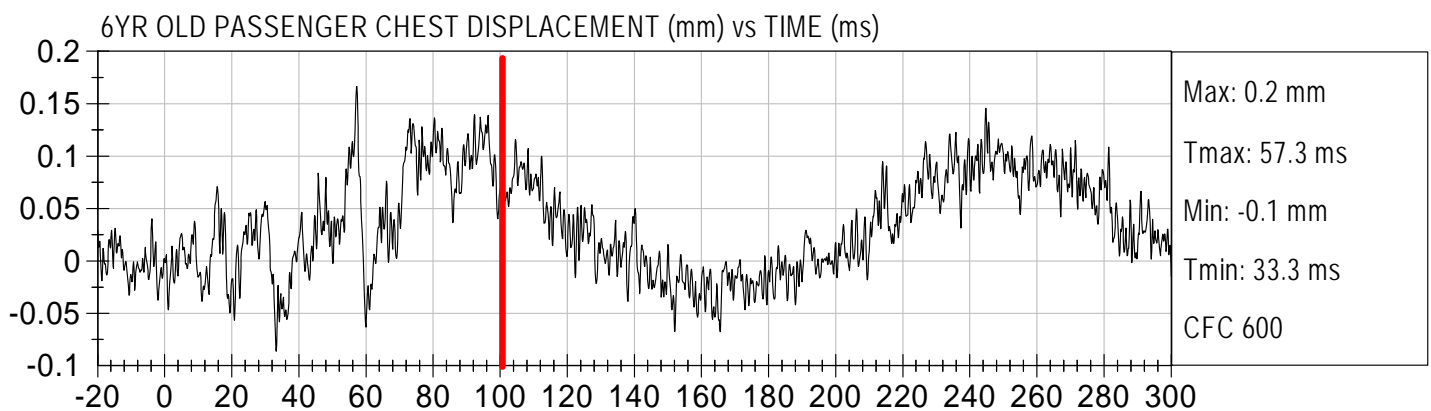
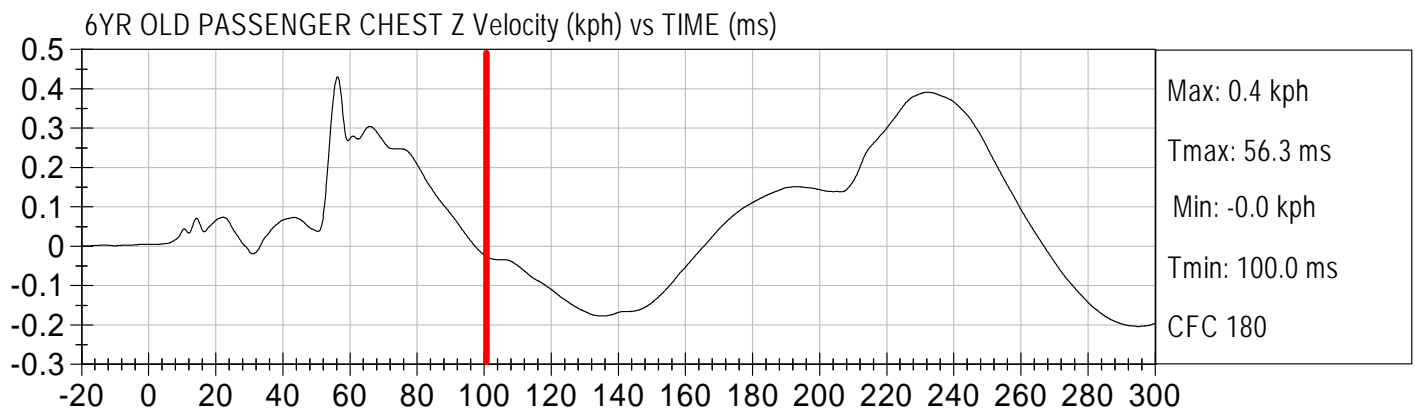
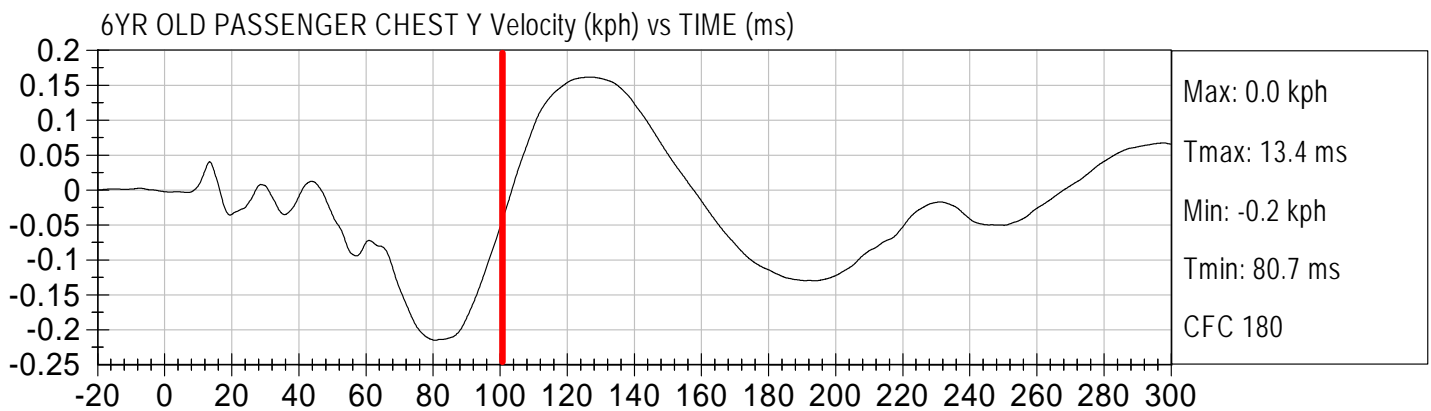
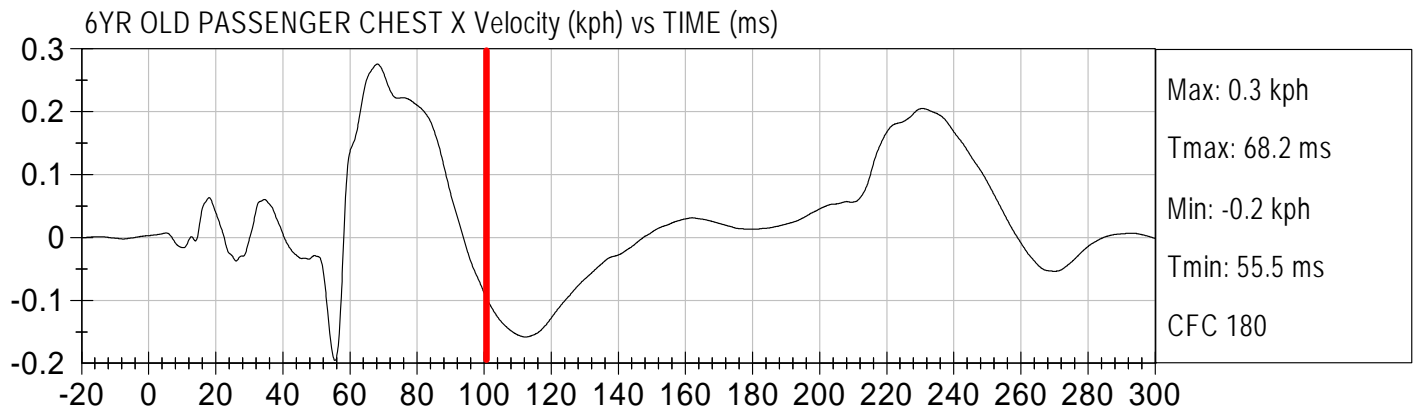
Max: 4.5 G's  
Tmax: 57.9 ms  
Min: 0.0 G's  
Tmin: 2.0 ms  
CFC 180



LOW RISK DEPLOYMENT  
2008 Smart fortwo (C80511) (6YO P2)

Test Date: 4/9/08  
Speed: 0.0 mph ( 0.0 km/h)

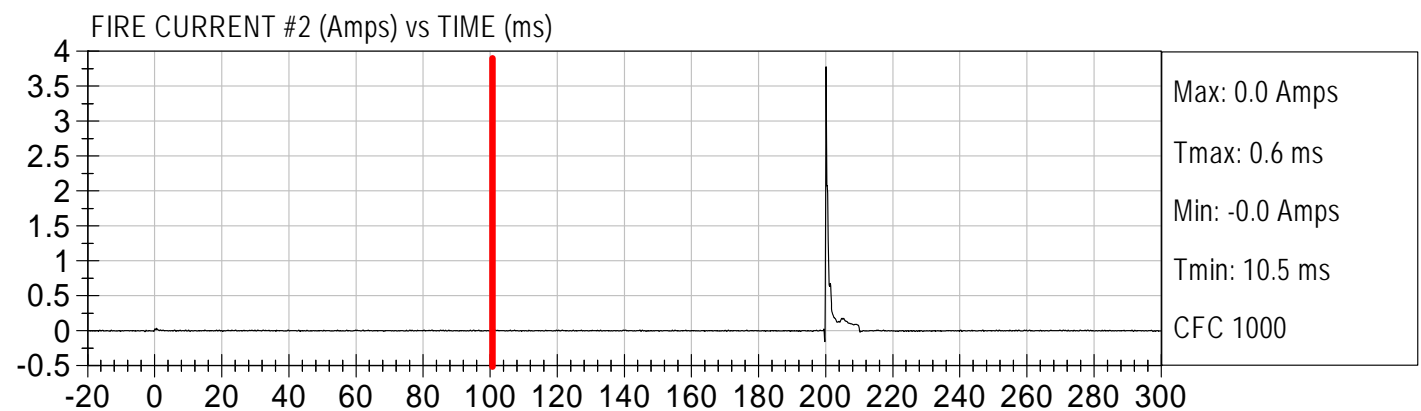
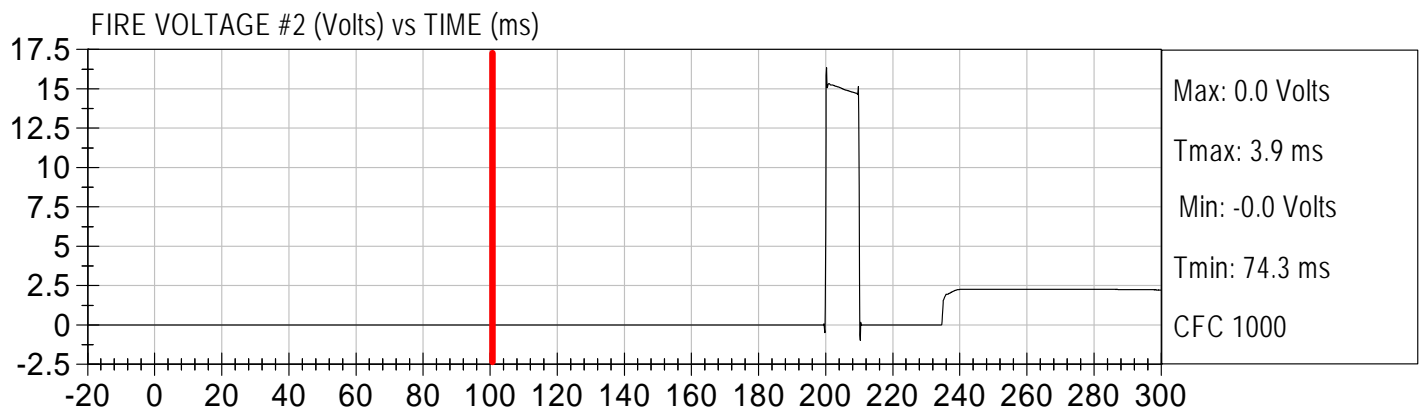
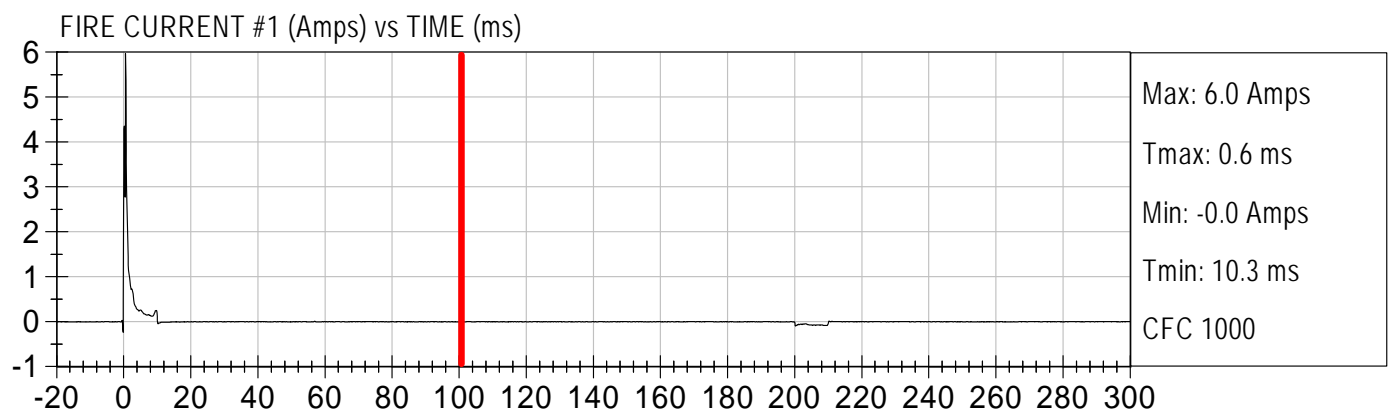
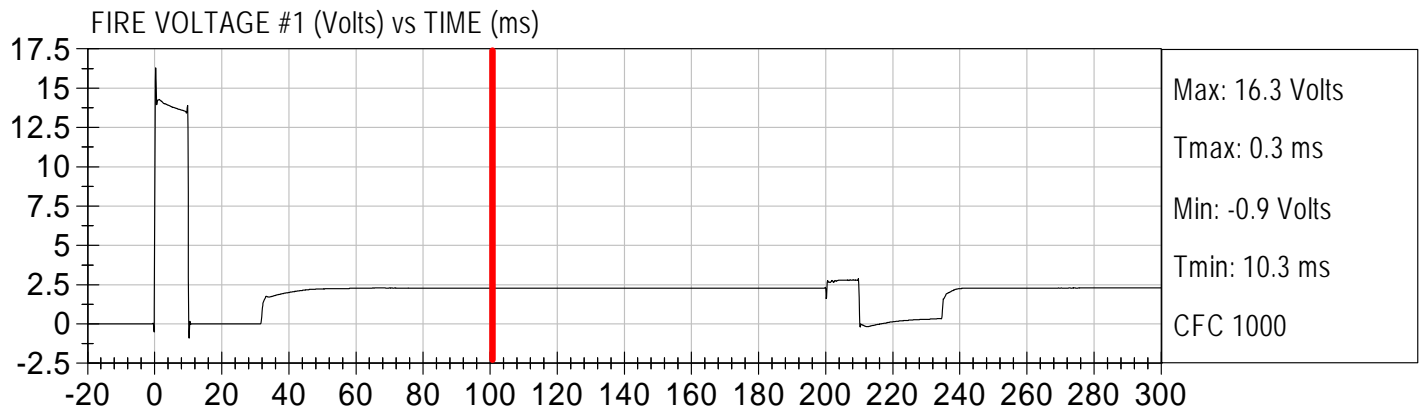
Injury Values Calculated between 0ms and 100ms

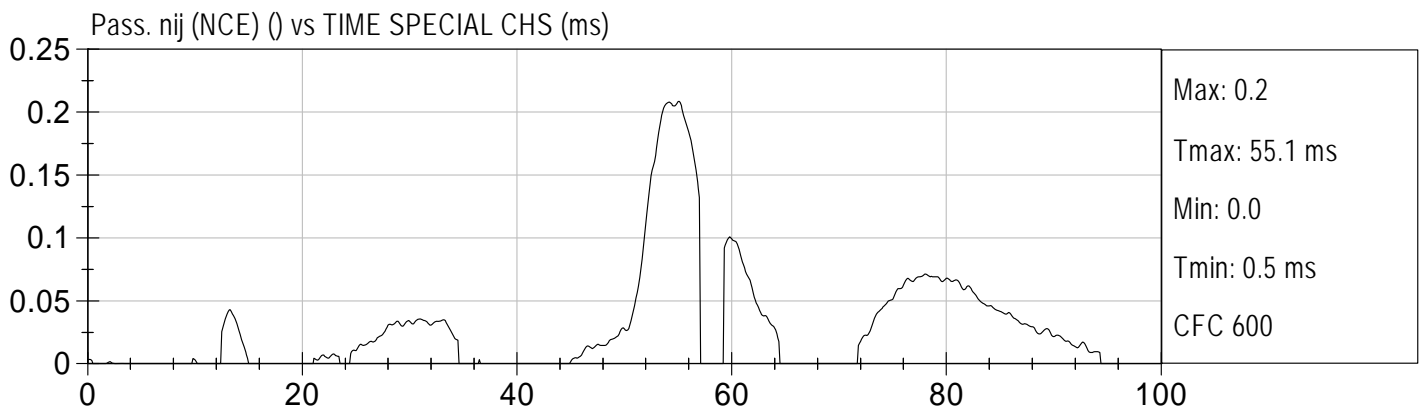
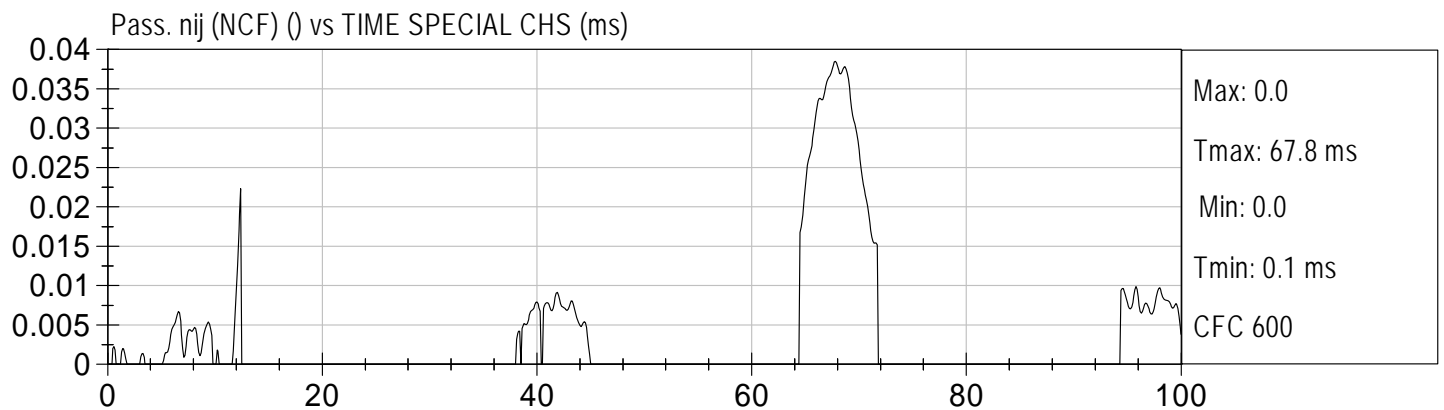
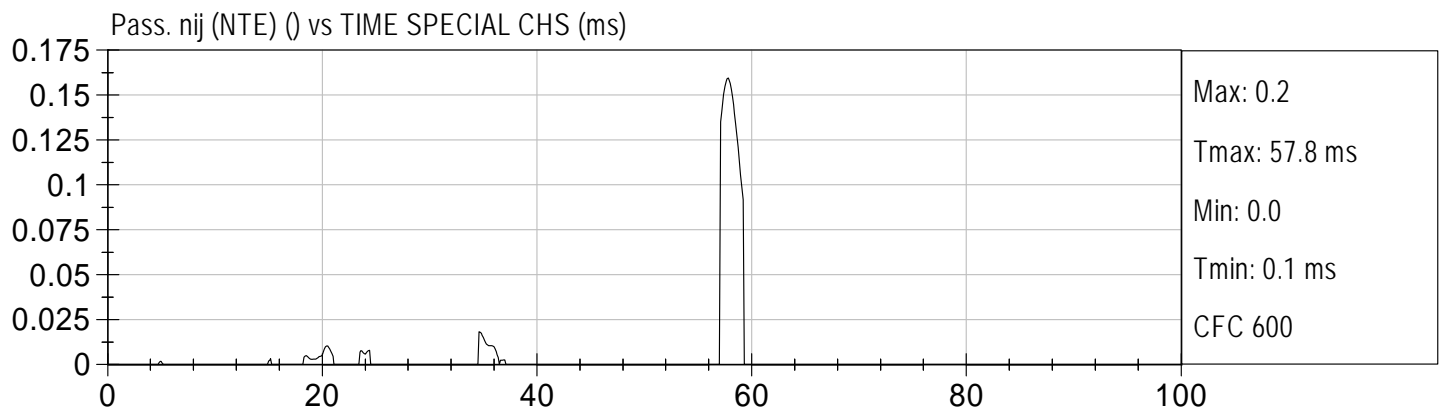
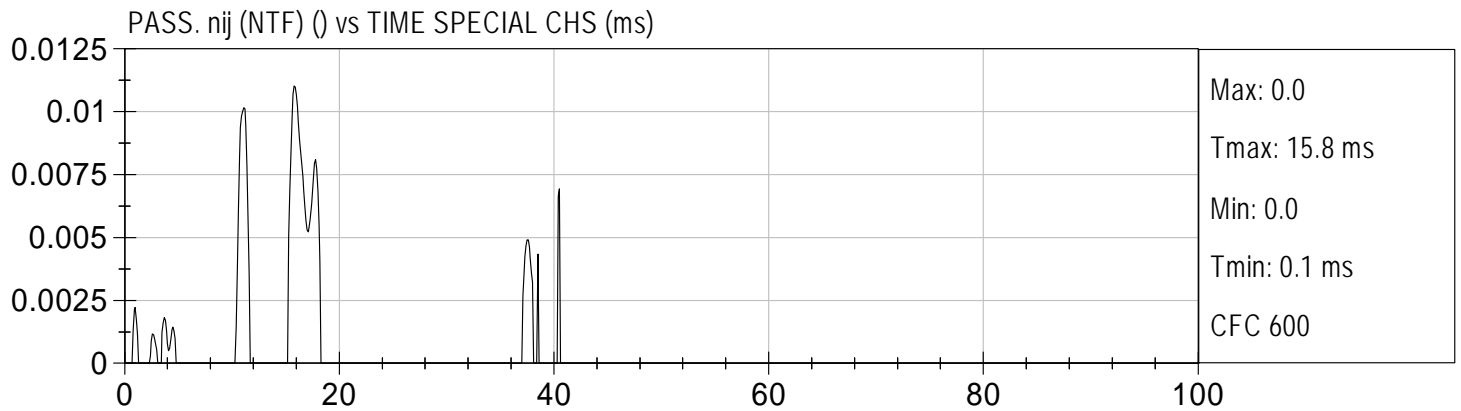






Injury Values Calculated between 0ms and 100ms





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**CRASH TEST PHOTOGRAPHS**

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**LOADING INFORMATION**

TY	TOTAL	2	FRONT	2
----	-------	---	-------	---

Weight of occupants and cargo  
do not exceed 230 kg or 507 lbs.

RE INFLATION PRESSURE	<b>SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION</b>
200 KPA, 29 PSI	
250 KPA, 36 PSI	
NONE	

A 451 584 01 17


**MFD BY DAIMLER AG**

MADE IN FRANCE	KG	LBS	PASSENGER CAR	01/08
GVWR	1050	2315	THIS VEHICLE CONFORMS TO ALL	
GAWR FRONT	440	970	APPLICABLE U.S. FEDERAL MOTOR	
GAWR REAR	660	1455	VEHICLE SAFETY BUMPER AND THEFT	
<b>WMEEJ31X58K107031</b>			PREVENTION STANDARDS IN EFFECT	
			ON THE DATE OF MANUFACTURE	
			SHOWN ABOVE	



Vehicle Certification Label





### TIRE AND LOADING INFORMATION

SEATING CAPACITY	TOTAL	2	FRONT	2
------------------	-------	---	-------	---

The combined weight of occupants and cargo should never exceed **230 kg** or **507 lbs**.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
155/60 R15	FRONT	200 KPA, 29 PSI
175/55 R15	REAR	250 KPA, 36 PSI
COMPACT SPARE TIRE	NONE	

**SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION**

A 451 584 01 17

MADE IN FRANCE

GVWR  
GAWR FRONT  
GAWR REAR  
**WMEEJ31**



Tire Placard





Pre-Test Front View of Test Vehicle





Post-Test Front View of Test Vehicle





Pre-Test Left Side View of Test Vehicle





Post-Test Left Side View of Test Vehicle





Pre-Test Right Side View of Test Vehicle





Post-Test Right Side View of Test Vehicle





Pre-Test Right Front Three-Quarter View of Test Vehicle





Post-Test Right Front Three-Quarter View of Test Vehicle





Pre-Test Left Front Three-Quarter View of Test Vehicle





Post-Test Left Front Three-Quarter View of Test Vehicle





Pre-Test Right Rear Three-Quarter View of Test Vehicle





Post-Test Right Rear Three-Quarter View of Test Vehicle





Pre-Test Left Rear Three-Quarter View of Test Vehicle





Post-Test Left Rear Three-Quarter View of Test Vehicle





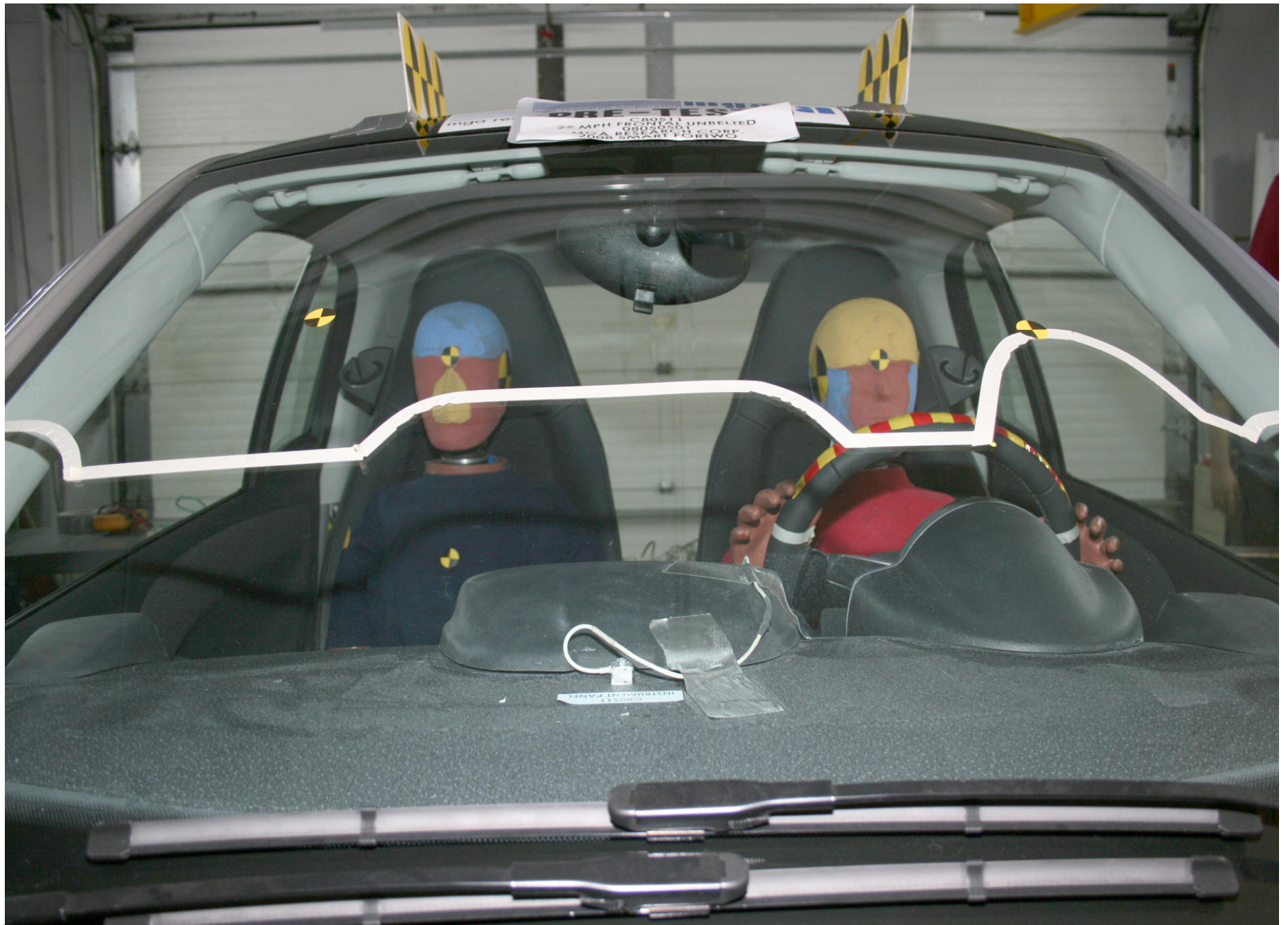
Pre-Test Rear View of Test Vehicle





Post-Test Rear View of Test Vehicle





Pre-Test Windshield View





Post-Test Windshield View





Pre-Test Engine Compartment View





Post-Test Engine Compartment View





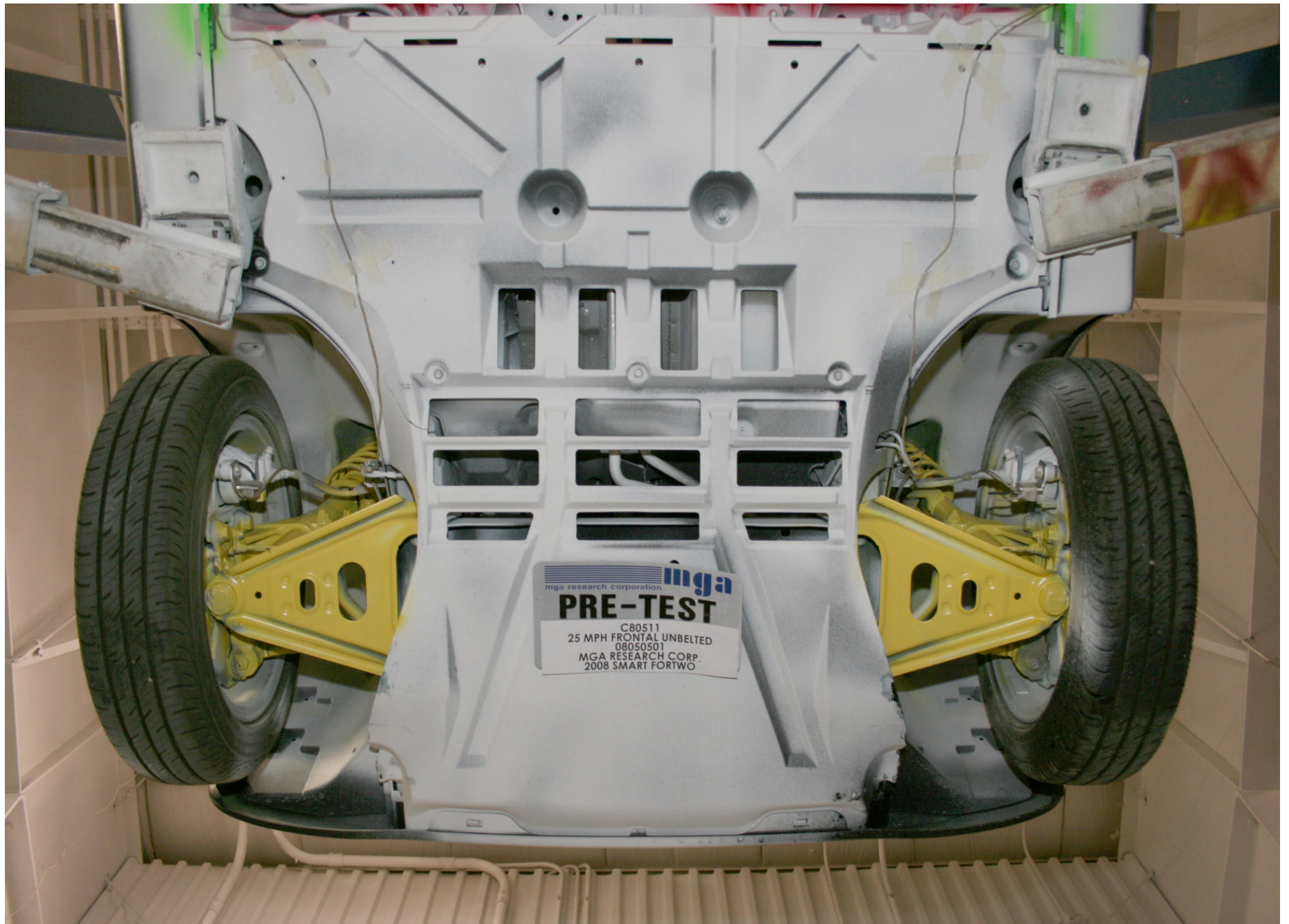
Pre-Test Fuel Filler Cap View





Post-Test Fuel Filler Cap View





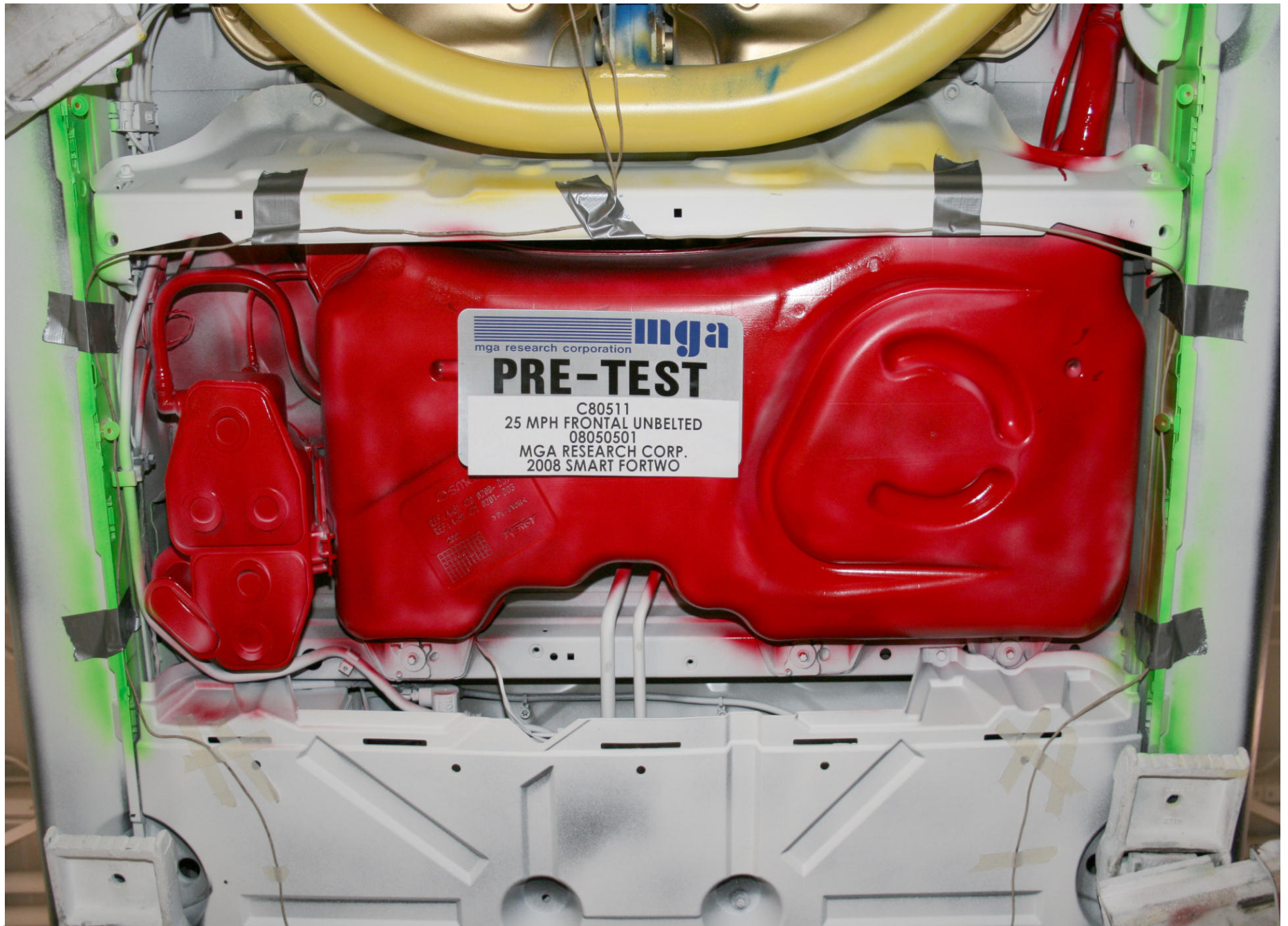
Pre-Test Front Underbody View





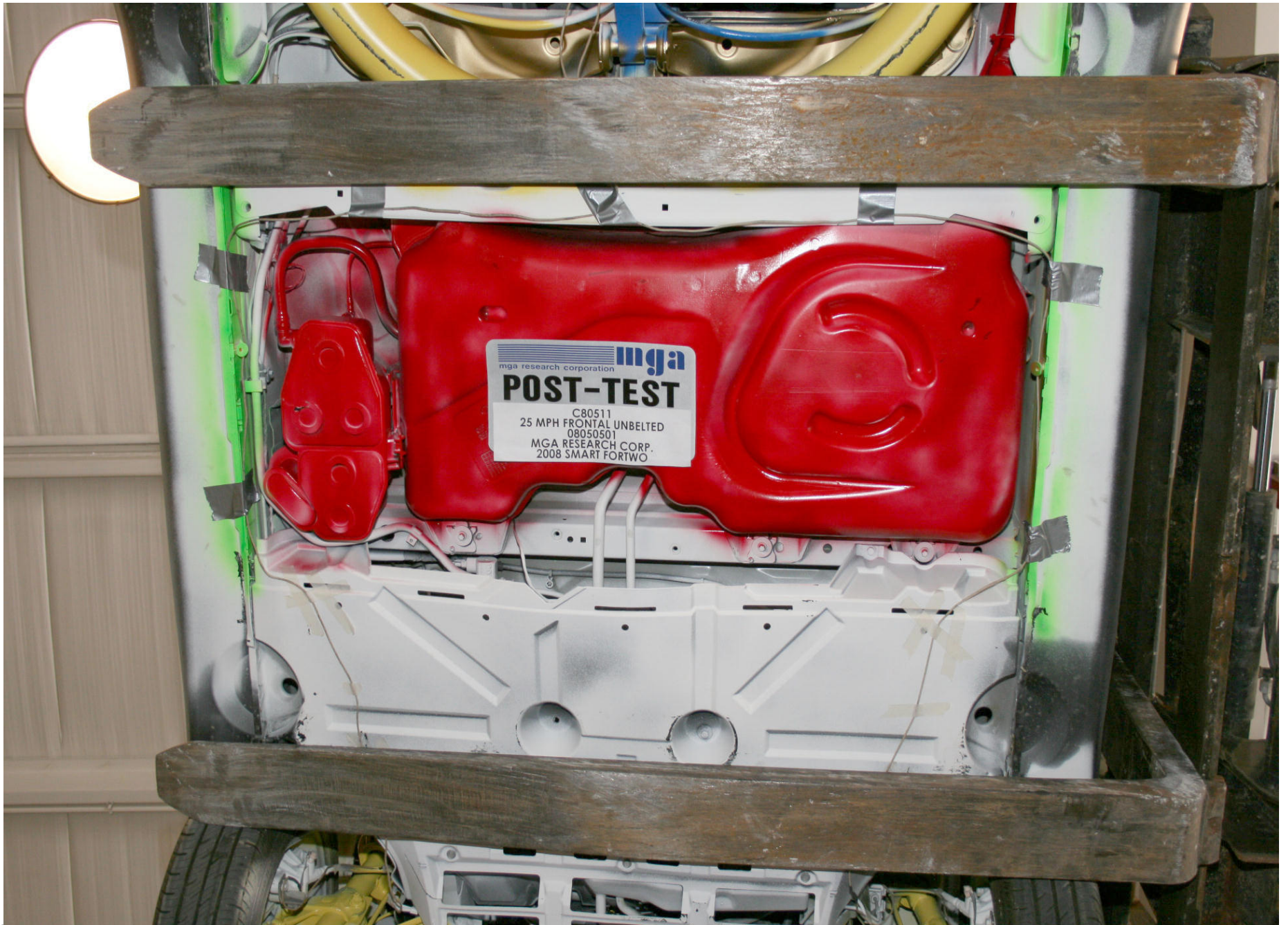
Post-Test Front Underbody View





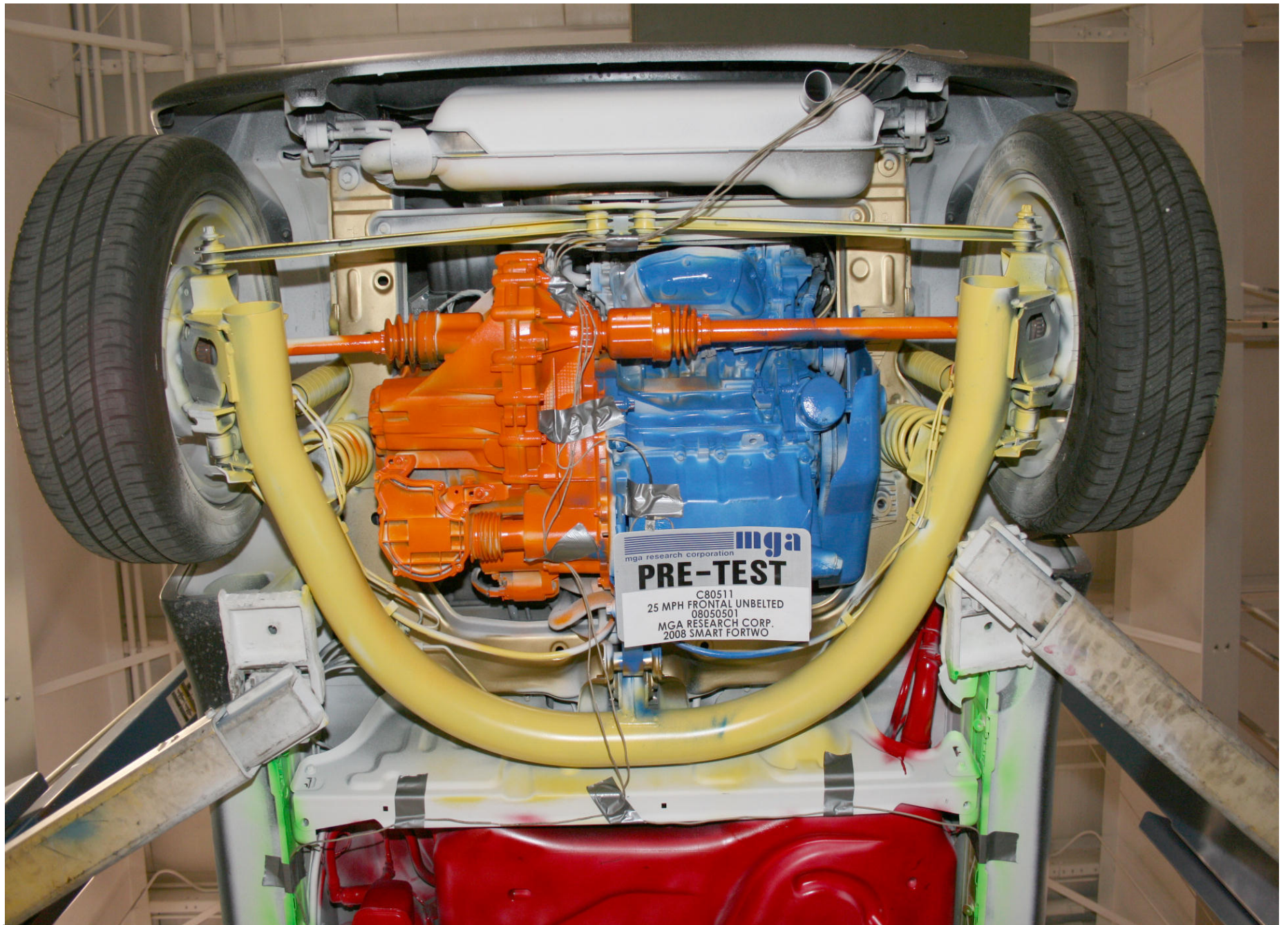
Pre-Test Mid Underbody View





Post-Test Mid Underbody View





Pre-Test Rear Underbody View





Post-Test Rear Underbody View





Pre-Test Driver Dummy Front View (head position)





Post-Test Driver Dummy Front View (head position)





Pre-Test Driver Dummy Position Left Side View





Post-Test Driver Dummy Position Left Side View





Pre-Test Driver Dummy Position Left Side View (Door Open)





Post-Test Driver Dummy Position Left Side View (Door Open)





Pre-Test Driver Dummy Seat Position





Post-Test Driver Dummy Seat Position





Pre-Test Driver Dummy Feet Position





Post-Test Driver Dummy Feet Position





Pre-Test Driver Side Knee Bolster View





Post-Test Driver Side Knee Bolster View





Post-Test Driver Dummy Airbag Contact





Post-Test Driver Dummy Head Contact (visor)





Post-Test Driver Dummy Head Contact (headrest)



C-46.



Post-Test Driver Dummy Knee Contact





Pre-Test Passenger Dummy Front View (head position)





Post-Test Passenger Dummy Front View (head position)





Pre-Test Passenger Dummy Position Right Side View





Post-Test Passenger Dummy Position Right Side View





Pre-Test Passenger Dummy Position Right Side View (Door Open)





Post-Test Passenger Dummy Position Right Side View (Door Open)





Pre-Test Passenger Dummy Seat Position





Post-Test Passenger Dummy Seat Position





Pre-Test Passenger Dummy Feet Position





Post-Test Passenger Dummy Feet Position





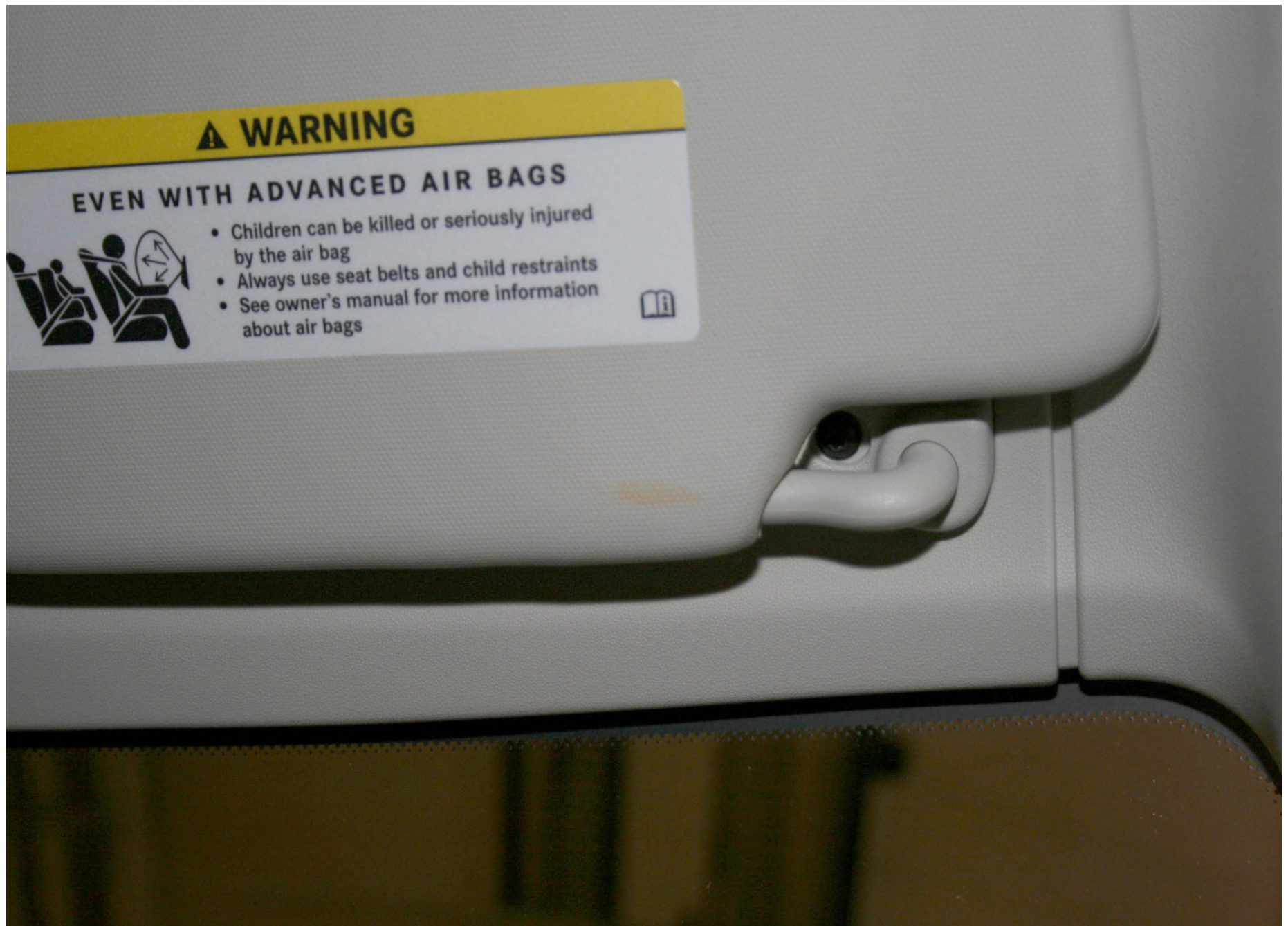
Pre-Test Passenger Side Knee Bolster View





Post-Test Passenger Side Knee Bolster View





Post-Test Passenger Dummy Head Contact View (visor)



C-60.



Post-Test Passenger Dummy Knee Contact



C-61.



Post-Test Passenger Dummy Airbag Contact



C-62.



C80511  
25 MPH FRONTAL UNBELTED  
08050501  
MGA RESEARCH CORP.  
2008 SMART FORTWO

Rollover 90 Degrees



C-63.



Rollover 180 Degrees



C-64.



Rollover 270 Degrees



C-65.



Rollover 360 Degrees









Vehicle in Relation to The Load Cell Grid



**APPENDIX D**  
**LOW RISK PHOTOGRAPHS**

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Pre-Test 5th Fem. P1 Driver Dummy Left Side View





Post-Test 5th Fem. P1 Driver Dummy Left Side View





Pre-Test 5th Fem. P1 Driver Dummy Right Side View





Post-Test 5th Fem. P1 Driver Dummy Right Side View



D-5.



Post-Test 5th Fem. P1 Driver Dummy Airbag Left Side View





Post-Test 5th Fem. P1 Driver Dummy Airbag Right Side View





Pre-Test 5th Fem. P2 Driver Dummy Left Side View





Post-Test 5th Fem. P2 Driver Dummy Left Side View





Pre-Test 5th Fem. P2 Driver Dummy Right Side View





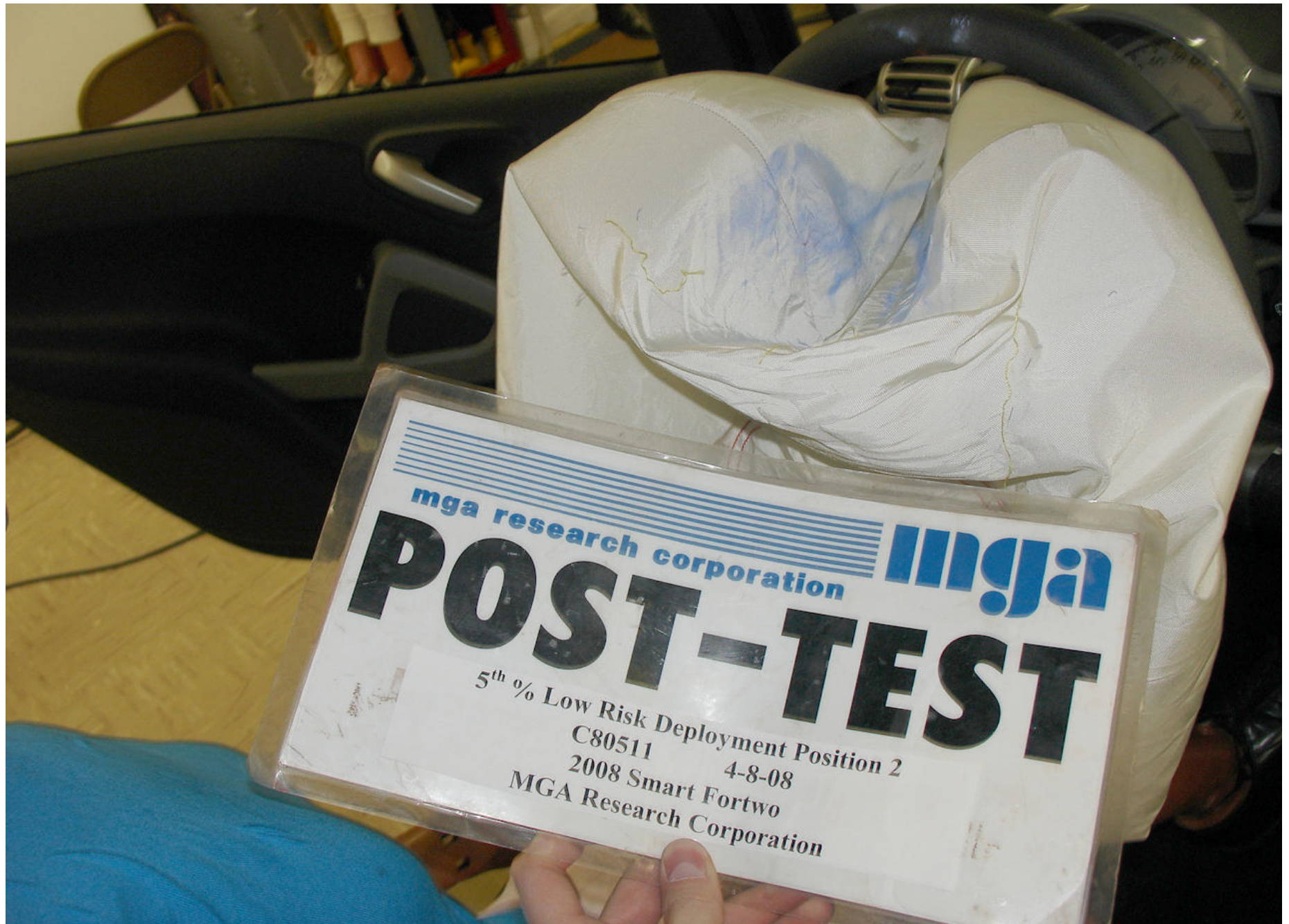
Post-Test 5th Fem. P2 Driver Dummy Right Side View





Post-Test 5th Fem. P2 Driver Dummy Airbag Left Side View





Post-Test 5th Fem. P2 Driver Dummy Airbag Right Side View





Post-Test 5th Fem. P2 Driver Dummy Head Contact (headrest)





Pre-Test 3YO P1 Passenger Dummy Left Side View





Post-Test 3YO P1 Passenger Dummy Left Side View





Pre-Test 3YO P1 Passenger Dummy Right Side View





Post-Test 3YO P1 Passenger Dummy Right Side View





Post-Test 3YO P1 Passenger Dummy Airbag Left Side View





Post-Test 3YO P1 Passenger Dummy Airbag View





Post-Test 3YO P1 Passenger Dummy Head Contact View





Pre-Test 3YO P2 Passenger Dummy Left Side View





Post-Test 3YO P2 Passenger Dummy Left Side View





Pre-Test 3YO P2 Passenger Dummy Right Side View





Post-Test 3YO P2 Passenger Dummy Right Side View





Post-Test 3YO P2 Passenger Dummy Airbag Left Side View





Pre-Test 6YO P1 Passenger Dummy Left Side View





Post-Test 6YO P1 Passenger Dummy Left Side View





Pre-Test 6YO P1 Passenger Dummy Right Side View





Post-Test 6YO P1 Passenger Dummy Right Side View





Post-Test 6YO P1 Passenger Dummy Airbag Left Side View





Post-Test 6YO P1 Passenger Dummy Airbag Right Side View





Pre-Test 6YO P2 Passenger Dummy Left Side View





Post-Test 6YO P2 Passenger Dummy Left Side View





Pre-Test 6YO P2 Passenger Dummy Right Side View



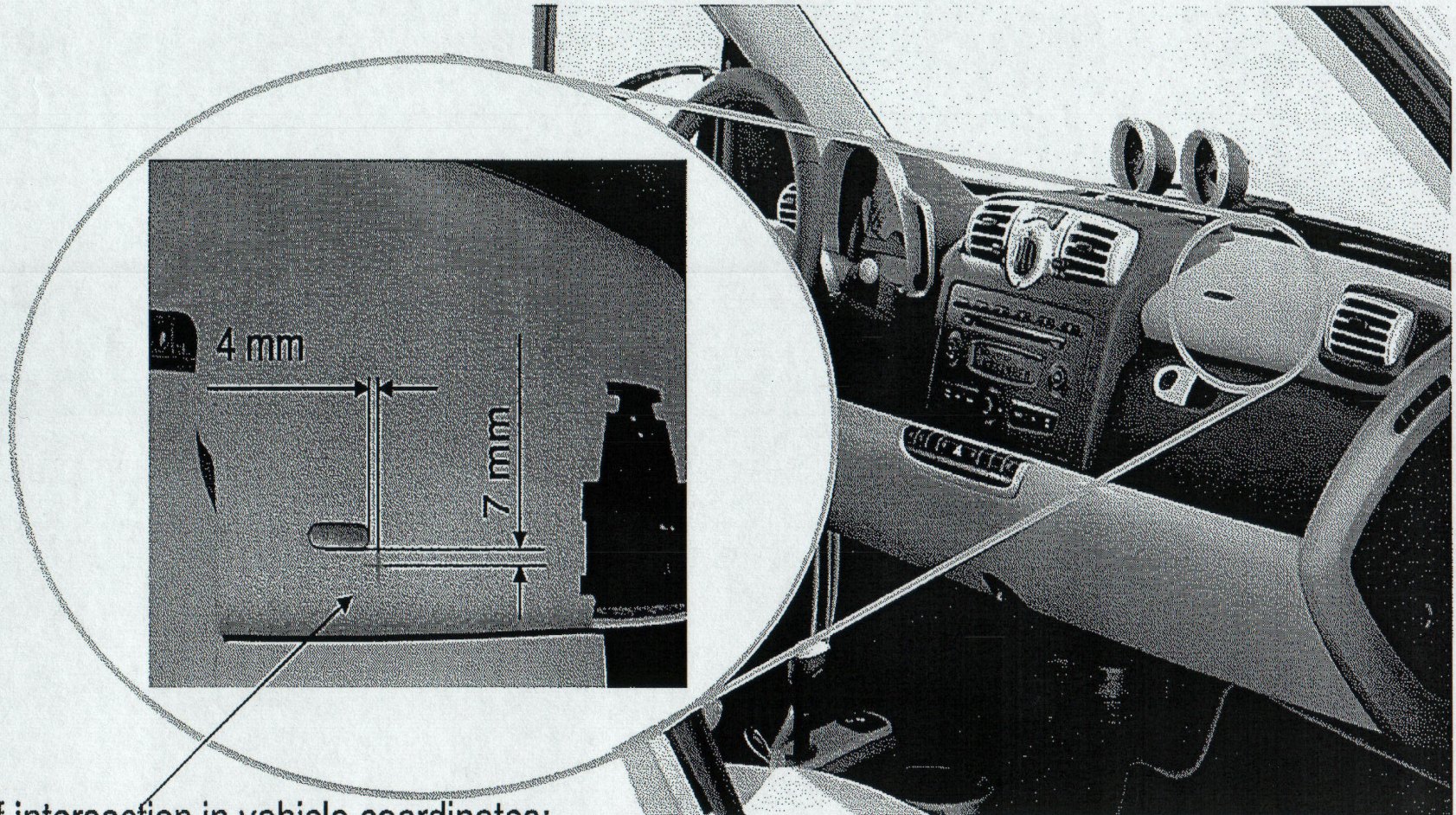


Post-Test 6YO P2 Passenger Dummy Right Side View



# Intersection of plane „D“ and plane „C“ according to FMVSS 208 (paragraph S22.4.1.2 to S22.4.1.4 and S24.4.1.2 to S24.4.1.4)

- Assumption: ignition of 2nd inflator stage 5 ms after  $t_0$ ,  
static fully inflated passenger airbag at 55ms



Point of intersection in vehicle coordinates:

X 462 / Y 289 / Z 759

**DELPHI**



**APPENDIX E**  
**SUPPRESSION PHOTOGRAPHS**

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DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

Newborn

Section A

Car Bed



Cosco Dream Ride Car Bed With Belt, Forward Seat Track



Cosco Dream Ride Car Bed With Belt, Middle Seat Track



Cosco Dream Ride Car Bed With Belt, Rearward Seat Track



Unbelted 5th Percentile Female Dummy Reactivation,  
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS

E-2



Britax Handle With Care 191 With Belt, Forward Seat Track



Britax Handle With Care 191 With Belt, Middle Seat Track



Britax Handle With Care 191 With Belt, Rearward Seat Track



Britax Handle With Care 191 Unbelted, Forward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS

E-3



Britax Handle With Care 191 Unbelted, Middle Seat Track



Britax Handle With Care 191 Unbelted, Rearward Seat Track



Britax Handle With Care 191 Forward Facing Unbelted,  
Forward Seat Track



Britax Handle With Care 191 Forward Facing Unbelted,  
Middle Seat Track



Britax Handle With Care 191 Forward Facing Unbelted,  
Rearward Seat Track



Unbelted 5th Percentile Female Dummy Reactivation,  
Forward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS

E-5



Evenflo First Choice 204 With Belt, Forward Seat Track



Evenflo First Choice 204 With Belt, Middle Seat Track



Evenflo First Choice 204 With Belt, Rearward Seat Track



Evenflo First Choice 204 Unbelted, Forward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS

E-6



Evenflo First Choice 204 Unbelted, Middle Seat Track



Evenflo First Choice 204 Unbelted, Rearward Seat Track



Evenflo First Choice 204 Forward Facing Unbelted,  
Forward Seat Track



Evenflo First Choice 204 Forward Facing Unbelted,  
Middle Seat Track



Evenflo First Choice 204 Forward Facing Unbelted,  
Rearward Seat Track



Unbelted 5th Percentile Female Dummy Reactivation,  
Middle Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS

E-8



Graco Infant W/ Base With Belt, Forward Seat Track



Graco Infant W/ Base With Belt, Middle Seat Track



Graco Infant W/ Base With Belt, Rearward Seat Track



Graco Infant W/ Base Unbelted, Forward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS

E-9



Graco Infant W/ Base Unbelted, Middle Seat Track



Graco Infant W/ Base Unbelted, Rearward Seat Track



Graco Infant W/ Base Forward Facing Unbelted,  
Forward Seat Track



Graco Infant W/ Base Forward Facing Unbelted,  
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS



Graco Infant W/ Base Forward Facing Unbelted,  
Rearward Seat Track



Graco Infant W/O Base With Belt, Forward Seat Track



Graco Infant W/O Base With Belt, Middle Seat Track



Graco Infant W/O Base With Belt, Rearward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

Rear Facing CRS



Graco Infant W/O Base Unbelted, Forward Seat Track



Graco Infant W/O Base Unbelted, Middle Seat Track



Graco Infant W/O Base Unbelted, Rearward Seat Track



Graco Infant W/O Base Forward Facing Unbelted,  
Forward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section B

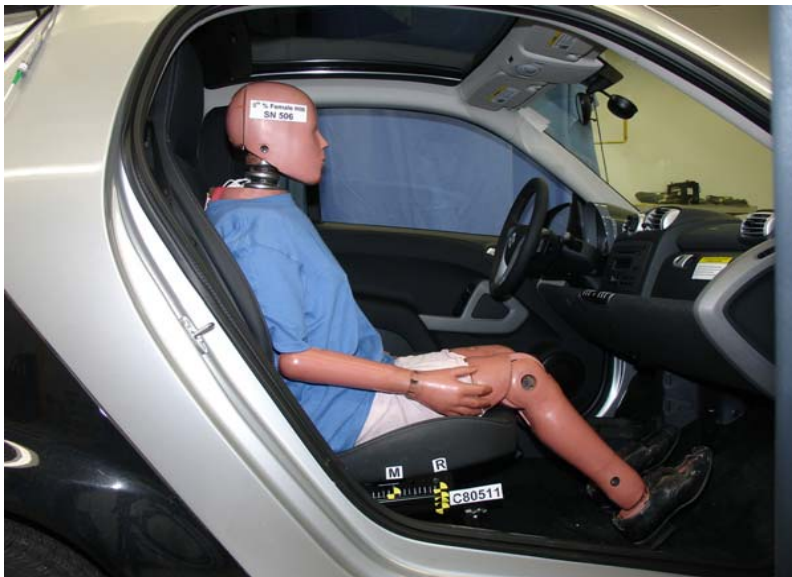
Rear Facing CRS



Graco Infant W/O Base Forward Facing Unbelted,  
Middle Seat Track



Graco Infant W/O Base Forward Facing Unbelted,  
Rearward Seat Track



Unbelted 5th Percentile Female Dummy Reactivation,  
Rearward Seat Track



Britax Roundabout 161 Forward Facing With Belt,  
Forward Seat Track



Britax Roundabout 161 Forward Facing With Belt,  
Middle Seat Track



Britax Roundabout 161 Forward Facing With Belt,  
Rearward Seat Track



Britax Roundabout 161 Forward Facing Unbelted,  
Forward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)  
12 Month Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Forward Facing Unbelted,  
Middle Seat Track



Britax Roundabout 161 Forward Facing Unbelted,  
Rearward Seat Track



Britax Roundabout 161 Rear Facing With Belt,  
Forward Seat Track



Britax Roundabout 161 Rear Facing With Belt,  
Middle Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)  
12 Month Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Rear Facing With Belt,  
Rearward Seat Track



Britax Roundabout 161 Rear Facing Unbelted,  
Forward Seat Track



Britax Roundabout 161 Rear Facing Unbelted,  
Middle Seat Track



Britax Roundabout 161 Rear Facing Unbelted,  
Rearward Seat Track



Unbelted 5th Percentile Female Dummy Reactivation,  
Forward Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section C

Forward Facing Convertible CRS



Century Encore Forward Facing With Belt, Forward Seat Track



Century Encore Forward Facing With Belt, Middle Seat Track



Century Encore Forward Facing With Belt, Rearward Seat Track



Century Encore Forward Facing Unbelted, Forward Seat Track





Century Encore Forward Facing Unbelted, Middle Seat Track



Century Encore Forward Facing Unbelted, Rearward Seat Track



Century Encore Rear Facing With Belt, Forward Seat Track



Century Encore Rear Facing With Belt, Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section C

Forward Facing Convertible CRS



Century Encore Rear Facing With Belt, Rearward Seat Track



Century Encore Rear Facing Unbelted, Forward Seat Track



Century Encore Rear Facing Unbelted, Middle Seat Track



Century Encore Rear Facing Unbelted, Rearward Seat Track





Unbelted 5th Percentile Female Dummy Reactivation,  
Middle Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Forward Facing With Belt,  
Forward Seat Track



Evenflo Medallion 254 Forward Facing With Belt,  
Middle Seat Track



Evenflo Medallion 254 Forward Facing With Belt,  
Rearward Seat Track



Evenflo Medallion 254 Forward Facing Unbelted,  
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Forward Facing Unbelted,  
Middle Seat Track



Evenflo Medallion 254 Forward Facing Unbelted,  
Rearward Seat Track



Evenflo Medallion 254 Rear Facing With Belt,  
Forward Seat Track



Evenflo Medallion 254 Rear Facing With Belt,  
Middle Seat Track



DOT/NHTSA 208 Suppression Test – 2008 Smart Fortwo (C80511)  
12 Month Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Rear Facing With Belt,  
Rearward Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,  
Forward Seat Track

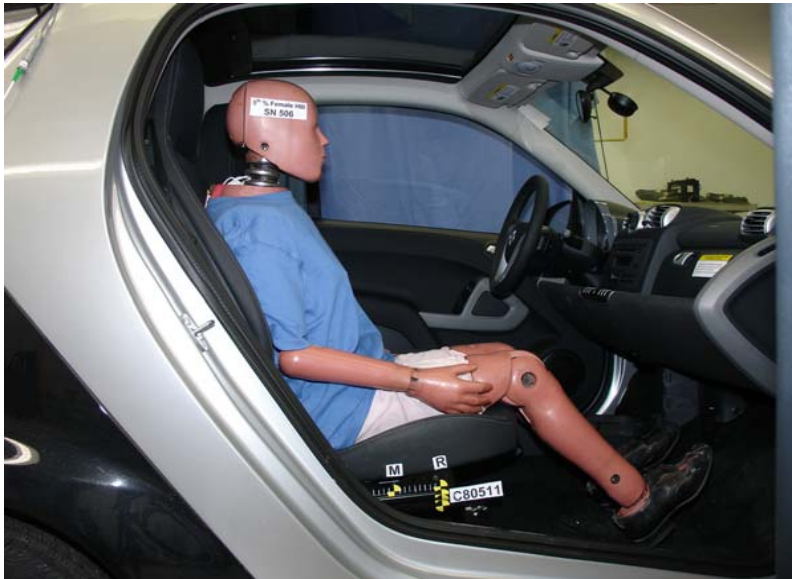


Evenflo Medallion 254 Rear Facing Unbelted,  
Middle Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,  
Rearward Seat Track





Unbelted 5th Percentile Female Dummy Reactivation,  
Rearward Seat Track

**APPENDIX F**  
**INSTRUMENTATION CALIBRATION**

**INSTRUMENTS FOR DRIVER DUMMY NO. 124**

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P52176	Endevco	02/19/08
Head Y	P52175	Endevco	02/19/08
Head Z	P52177	Endevco	02/19/08
Neck Load Cell	1562	Denton	01/30/08
Chest X	P22805	Endevco	02/19/08
Chest Y	P52148	Endevco	02/19/08
Chest Z	P52147	Endevco	02/19/08
Chest Displacement	124	Servo	02/12/08
Left Femur Load Cell	1360	Denton	02/04/08
Right Femur Load Cell	1359	Denton	02/04/08

**INSTRUMENTS FOR PASSENGER DUMMY NO. 125**

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P49490	Endevco	02/19/08
Head Y	P49487	Endevco	02/19/08
Head Z	P49225	Endevco	02/19/08
Neck Load Cell	1748	Denton	11/08/07
Chest X	P48386	Endevco	02/19/08
Chest Y	P48388	Endevco	02/19/08
Chest Z	P48387	Endevco	02/19/08
Chest Displacement	125	Servo	02/12/08
Left Femur Load Cell	1362	Denton	04/15/08
Right Femur Load Cell	1361	Denton	04/15/08



### INSTRUMENTS FOR LOW RISK 5<sup>TH</sup> FEMALE DUMMY NO. 124 P1

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P52176	Endevco	02/19/08
Head Y	P52175	Endevco	02/19/08
Head Z	P52177	Endevco	02/19/08
Neck Load Cell	1021	Denton	12/20/07
Chest X	P22805	Endevco	02/19/08
Chest Y	P52148	Endevco	02/19/08
Chest Z	P52147	Endevco	02/19/08
Chest Displacement	124	Servo	02/12/08
Left Femur Load Cell	1360	Denton	02/04/08
Right Femur Load Cell	1359	Denton	02/04/08

### INSTRUMENTS FOR LOW RISK 5<sup>TH</sup> FEMALE DUMMY NO. 125 P2

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P49490	Endevco	02/19/08
Head Y	P49487	Endevco	02/19/08
Head Z	P49225	Endevco	02/19/08
Neck Load Cell	1748	Denton	11/08/07
Chest X	P48386	Endevco	02/19/08
Chest Y	P48388	Endevco	02/19/08
Chest Z	P48387	Endevco	02/19/08
Chest Displacement	125	Servo	02/12/08
Left Femur Load Cell	1362	Denton	10/11/07
Right Femur Load Cell	1361	Denton	10/11/07

### INSTRUMENTS FOR LOW RISK 3 YEAR OLD CHILD DUMMY NO. 031 (P1 & P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P59224	Endevco	04/07/08
Head Y	P59223	Endevco	04/07/08
Head Z	P59227	Endevco	04/07/08
Neck Load Cell	210	Denton	12/12/07
Chest X	P59229	Endevco	04/07/08
Chest Y	P59228	Endevco	04/07/08
Chest Z	P59230	Endevco	04/07/08
Chest Displacement	031	Servo	12/11/07

### INSTRUMENTS FOR LOW RISK 6 YEAR OLD CHILD DUMMY NO. 155 (P1 & P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	B05-J08	Entran	12/12/07
Head Y	A29-N17	Entran	12/12/07
Head Z	C24-A03	Entran	12/12/07
Neck Load Cell	1562	Denton	01/30/08
Chest X	P52144	Endevco	01/15/08
Chest Y	G22-D16	Entran	01/15/08
Chest Z	G21-M14	Entran	01/15/08
Chest Displacement	155	Servo	02/08/08

### VEHICLE INSTRUMENTS

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	P48202	Endevco	01/09/08
Right Rear Seat Crossmember X	P47817	Endevco	02/06/08
Top of Engine X	J23808	Endevco	01/09/08
Bottom of Engine X	AJ820	Endevco	01/09/08
Left Brake Caliper X	J12471	Endevco	03/07/08
Right Brake Caliper X	J11548	Endevco	03/07/08
Instrument Panel X	P47801	Endevco	02/06/08
Trunk Z	P48178	Endevco	02/22/08